POPULAR Computing WEEKLY

Only 50p.

24-30 April 1986

Vol 5 No 17

Amstrad's PC looks set for May launch



COLOUR FEATURE
Masterpieces from the Art Gallery on Compunet – p12

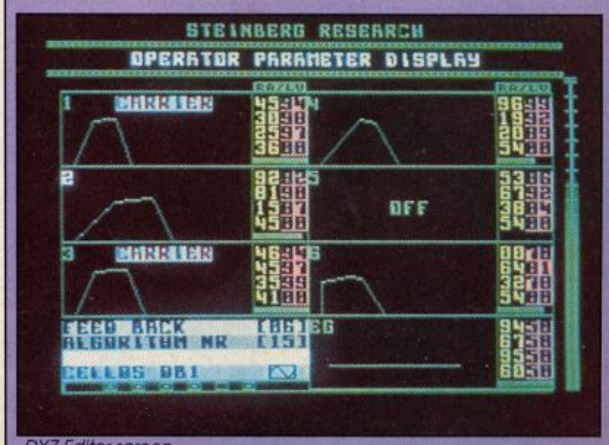
- **Amstrad could launch its PC compatible machine at the Amstrad Computer Show on 31 May**
- **Both PCDOS and CP/M compatibility to be included?**
- **Author of its operating system named**

Full details below and inside

AMSTRAD's PC compatible may now be scheduled for launch on 31 May at the next Amstrad Computer Show. The machine is likely to be in the £650-£700 range, will have a colour monitor, Digital Research's Gem graphics environment software on board and, it is suggested, both PC compatibility and CP/M file compatibility. It will also be sold in both floppy and hard disc versions (see *Popular Computing Weekly* March 20).

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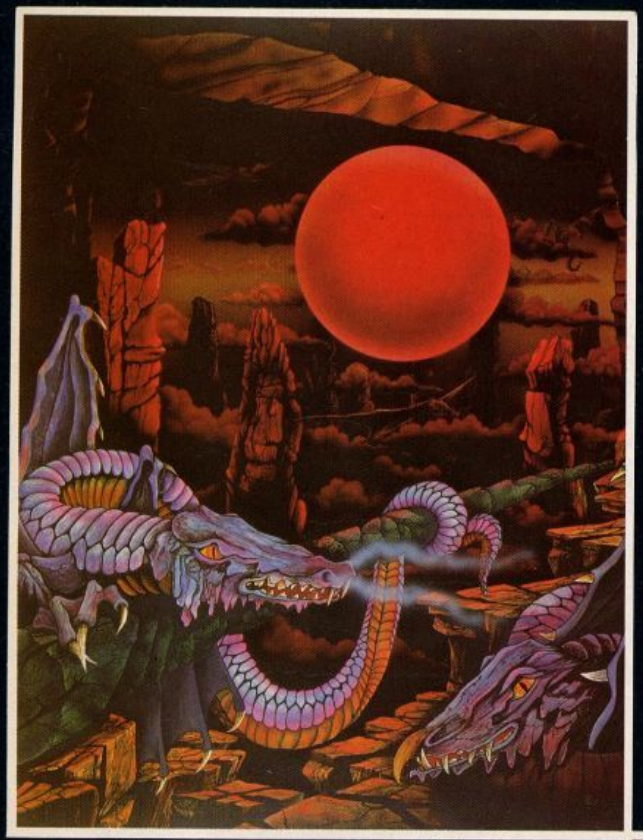
WORD WIZARDS
Don't miss the third part of our Wordsearch challenge
see p26 for details



DX7 Editor screen

HARDWARE REVIEW
Sounds exciting? Steinberg's Midi interface for the C64
see p10

AMSTRAD 464/664/6128, ATARI 64K, BBC 32K, CBM 64, MSX 64K, SPECTRUM 48/128K



Red Moon

Voted
"BEST ADVENTURE OF THE YEAR"
Commodore Computing International
Amstrad Computer User
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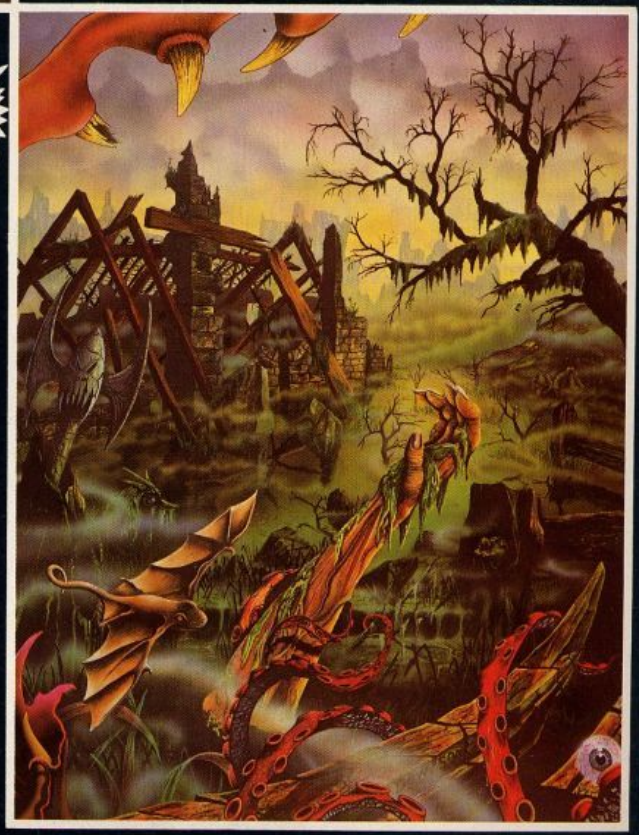
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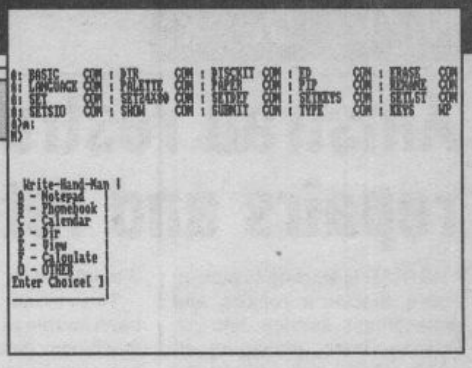
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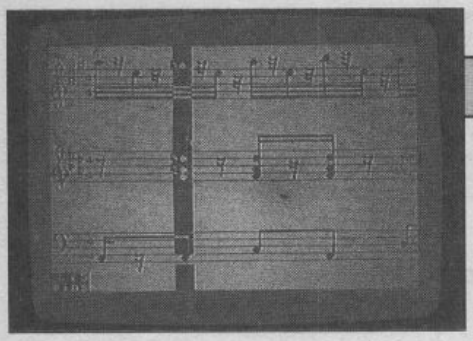
SOFTWARE ▶

9 Write Hand Man

Write Hand Man from Hi-Soft can sit invisibly in your PCW's memory until you call it up – and it becomes the micro's answer to Filofax

Assembler Workbench

A complete machine code toolkit package, *Assembler Workbench* is the latest offering for the QL from Talent

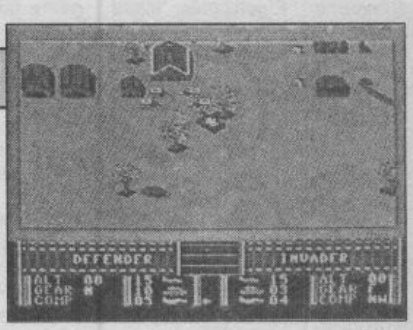


◀HARDWARE

10 Steinberg Midi composer

Mark Jenkins tunes his ear to Steinberg's Pro 16 Midi package – both the software and Midi interface are available – and finds they're both approachable and professional

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ABC

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Amstrad restructures Sinclair repairs and returns service

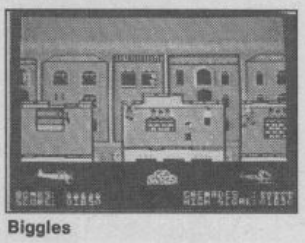
AMSTRAD is starting to pick up where Sinclair's repairs and replacement service left off. Norman Smith, managing director of Sinclair distributor Terry Blood Distribution, told *Popular Computing Weekly* that Sinclair's blue label 30 day replacement service "broke down about two weeks before Sinclair did".

This meant that TBD had been unable to exchange faulty machines. Amstrad, however, has now restarted the service in conjunction with TBD, and has taken advertising in the national press warning users to return faulty machines to their dealer, not to Sinclair.

Amstrad seems to intend to merge the 30 day replacement service and one year warranty on Sinclair products with its own facilities, but as Sinclair appears to have washed its hands of the whole matter, there may well be a few hiccups before the new service is fully up and running.

Mirrorsoft features Biggles at UK CES

MICRO companies exhibited for the first time at Britain's Consumer Electronics trade show, held from April 20-23 at Kensington Olympia.



Biggles

While the number of software firms taking part was fairly small, there were plenty of new offerings on view.

Mirrorsoft had one of the most prominent stands, and were previewing *Biggles*, the game based on the forthcoming film, and a version of *Fleet Street Editor* for the CPC 6128. Jim Mackonochie of Mirrorsoft also said that its Amstrad PCW *Fleet Street Editor* will not now be released until this autumn.

The company also displayed its new range of US-sourced 16-bit software and announced a forthcoming arts creation package for the Atari, *ST Art*.

Mikro-Gen previewed a new shoot'em up for the Amstrad CPCs called *Equinox*, while Mastertronic launched its Entertainment USA range, a series of £2.99 titles specifically written for Mastertronic by American programmers.

Both Level 9 and Rainbird took stands, with the former announcing that the latter would be publishing its *Colossal Trilogy*, a bumper version of the original *Colossal Caves* on the PCW, ST, and QL machines.

Software on smart cards was being heavily promoted at Electric Software's stand, while, on the peripherals side,



Cheetah's sound sampler

Cheetah displayed its Amstrad version of the Spectrum, and a new sound sampler at £44.95 for the Spectrum 48/128. Also on the Spectrum, Cheetah has developed a Midi interface at £49.95, with a 128 to Midi lead at £9.75.

Mikro-Gen joins the budgeteers

MIKRO-GEN is set to launch a £2.99 range of budget games, following on the lead set by US Gold (see *Popular Computing Weekly*, April 10). The complete range has yet to be finalised, but according to Mikro-Gen's managing director, Mike Meek it will lean heavily on the company's hits of years gone by.

One of the first releases, for example, will be a double tape of *Centipede* and *Galaxions*, the idea being, according to Meek, that "there's a certain place in the market that will just pay £3-4". The range will also include new titles, but won't initially include current products like *Three Weeks in Paradise*. Once these have dropped out of the charts they're liable to reappear as either single or double £2.99 games.

Apple announces new Mac – but no price cuts

APPLE has announced a new version of the Mac with operating system enhancements and the new 900K drive.

The new model is to be called the Macintosh 512/800 and fits into the range midway between the existing 512K Mac and the Macintosh Plus which was launched at January's *Which Computer?* Show.

The new disc drive, introduced on the Plus, is a double-sided model, and the operating system has been increased to 128K and put into Rom which makes for faster disc access and graphics handling. UK buyers will get a bonus in the form of the new keyboard incorporating numeric keypad. US customers will have to settle for the older version.

Price for the new model is £1,895 and it will be introduced on May 1. The existing Mac 512 will be dropped but an upgrade kit will be launched to allow Mac owners to upgrade in stages through the 512/800 up to the Plus.

This announcement puts paid to any hopes that Apple would eventually bring down prices to compete with the Atari ST. It is now clear that Apple will maintain pricing and offer extra features instead.

Amstrad's PC looks set for May launch

◄ continued from page 1

Paul Bailey of Digital Research wouldn't confirm or deny that Gem would be included on the machine. "I can't comment on any future plans of Amstrad," he said. "There's a lot of rumour about a 16-bit machine from Amstrad, and it's probably well-founded. But I think the market could be wrong on a number of counts."

Although it's thought the Amstrad PC will conform to the IBM standard by having 5¼ inch drives, the bulk of the current wave of CP/M products is on Amstrad 3 inch format discs. So if the machine combines the ability to read CP/M data files with 5¼ inch drives, it would also need to be able to cope with an external 3 inch drive.

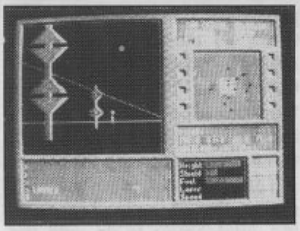
Amstrad specialist Timatic Systems is widely thought to have written the PC's operating system and Timatic was showing a 5¼ inch external drive for Amstrad's CP/M machines at the Amstrad show earlier this year. Nick Young of Timatic favours the 5¼ inch drive on the grounds of its greater capacity.

Timatic's 5¼ inch drive does however allow Amstrad's CP/M machines to read PC-DOS data files, so the company's experience here means it is well placed to do the job in reverse for the Amstrad PC. Young himself conceded that more details would be forthcoming at the Amstrad show.

Amstrad itself seems to have been in two minds about the machine's launch date, recently having cancelled a large stand booking at the June PC User show. This has prompted speculation that the machine isn't ready, or that Amstrad doesn't want to harm sales of the PCW8512 machines, but one dealer who had been ordering these heavily claimed to have been told there was "something much better" due in the next two months.

This would place it nicely for the Amstrad show, and would conform to Amstrad's policy of not alienating its dealers. The company makes a point of not pre-announcing launches, but immediately prior to the launch will suggest to dealers that they shouldn't invest too heavily in existing stock.

CRL rings bells with the Commodore



CRL is to launch an Amstrad version of *Blade Runner* and a 64 version of the acclaimed *Tau Ceti*, while its sister label Nu Wave is to launch *Tubular Bells* for the 64.

In *Blade Runner* you play a bounty hunter employed to seek and destroy the replidroids, androids bent on destroying the human race. It will be available from April at £8.95. *Tau Ceti* will be released in May at £9.95.

Tubular Bells is a combined soundtrack and light synthesiser, the soundtrack being a complete version of the LP by Mike Oldfield. The light synthesiser generates its own "mesmerising to watch" patterns, or can be controlled through the keyboard. A snip at £7.95.

Details from CRL, 01-402 9134.

Amiga graphics packs to be launched in May

PRECISION Software is to import *Animator, Images* and *Aegis Draw* – three animation and graphics packages for the Amiga from Aegis Development in California.

Animator is an animation package for graphics professionals and hobbyists, and will initially be sold bundled with a low resolution version of the *Images* paint package for £119.95. A high resolution of *Images* will later be sold separately for £69.95.

Aegis Draw is a full CAD package that includes automatic scaling, grids and a parts library. It will cost £169.95, and should be available from May. Details from Precision Software on 01-330 7166.

Citizen's £50 printer

A BARGAIN printer is being released by the Spectrum Group, imported from Japanese company Citizen.

The Citizen printer will cost just £49.99. A two colour dot matrix printer, it uses standard size paper rolls and is compatible with most Commodore computers: the Vic 20, C16, C64, Plus/4 and C128s.

Details from Spectrum on 0462 37171.

Linkword goes Dutch

LINKWORD has added Greek, Dutch, Russian and Portuguese to its BBC B first level foreign language courses.

The courses are designed for travel or schoolwork and are intended to teach grammar and a 350-400 word vocabulary in eight to 12 hours.

Second level courses in French, German, Spanish and Italian are also now available. Each course comes on disc and costs £24.95.

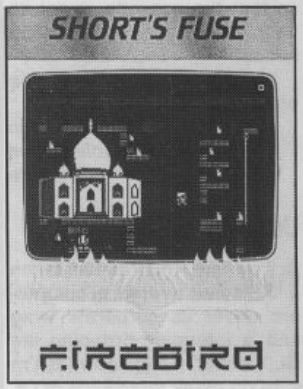
Details from Access Software, 100 Baker Street, London W1 (01-935 1470).

Firebird freebie hits hitch at Hi-tech

POPULAR Computing Weekly's special tape offer, organised in conjunction with Firebird, has unfortunately been affected by the liquidation of Hi-tech Distribution.

Much of Firebird's stock was being held by Hi-tech, and is now in the hands of the liquidator.

Those who recently sent in for Firebird tapes will be receiving the *Arcade Champions Handbook* in compensation.



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19th ZX MICROFAIR

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Letters

Tight fit

I refer to your issue dated March 27, in which Andrew Nightingale wrote that he was having trouble loading programs with his C2N, which is over 12 month old.

I, too, had similar problems, but I have managed to cure them by carefully bending the metal spring clip where the top of the cassette fits into the C2N. This makes the cassette fit more tightly into the unit and therefore enables the very critical impulses to be picked up correctly. I assume that this clip tends to weaken with use so that the cassette is not so tight fitting against the tape heads.

I hope this solves the problem.

Paul B Nash
Cheadle Hulme
Cheshire

Unusuable QL?

Now that Amstrad has taken Sinclair's range of computers under its corporate wing and is intending dropping the QL, I would like to know (as I'm sure do many thousands of QL and Spectrum owners) if the company intends to carry on manufacturing microdrive cartridges. I know they are non-standard and quirky (although they've never caused me any problems), but if they were to disappear, all QL owners will fine themselves with no mass storage media – unless, of course, we all fork out a couple of hundred pounds for a disc drive.

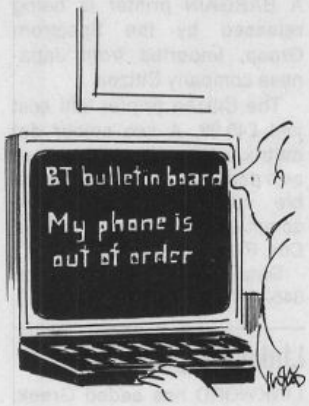
This surely would be an unprecedented situation for any discontinued home micro. The QL would not only be rendered obsolete but unusable, once all the users' existing cartridges were used up.

Rob Baxter
Whalley Range
Manchester

Computer music

As a local organiser for the arthritis and rheumatism council for research, I am appealing through the magazine for assistance from computer users with an interest in music.

The A.R.C. is celebrating its 50th anniversary and depends extensively on public support for funds which are directed towards medical research within this field.



My current project is to make an audio tape of computer generated music; while I program extensively myself within this field, 'many hands make light work' and co-operation means success. This tape would be sold as widely as possible. With all proceeds going to the A.R.C. funds.

All types of music are acceptable – classical, jazz, folk, electronic, etc. While I can offer no prizes, your contribution would be duly acknowledged on the cassette by name.

Programs should be sent to the address below; should they be in Commodore 64 mode, a tape or disc will be acceptable (returnable on request). Other computers would require an audio tape. Please specify program aids used where applicable.

Great or small – contributions will be acknowledged.

Dr E Mills
43 Chancel Close
Nailsea
Bristol BS19 2NE

Faster chips

I find it very annoying the way this magazine persists in printing inaccuate information, especially regarding the Sinclair QL (and Atari ST range).

The 68000 range of processors are not 16-bit. The amount of data pins on the chips is, on the whole, irrelevant. The hardware inside the processor takes care of the access of words and long words if the data bus is too small. The Z8000 has only an 8-bit data bus but this is far from an 8-bit processor. Admittedly, the width of the data bus does make the 68008 slower than the 68000 and the 68000 slower than the 68020 but this is only by a few per cent. Internally all three processors are 32-bit.

The reason added memory makes the QL faster has nothing whatsoever to do with the screen update. The 68008 in the QL runs at 7.5 MHz but the 64K memory chips inside are not capable of running this fast, so the 68008 is slowed down when accessing this internal memory, to allow for these slower chips. Most memory expansion units use new faster chips which are capable of the high speeds necessary, thus now slowing the CPU.

The screen update does slow the memory access up, but does this to the external memory as well, as there is only one data bus. The video ULA grabs the data bus and stops all memory access by the CPU.

K A Unsworth
Grays
Essex

Big-ridden

As a rueful owner of an Atari 520ST, I have to conclude that the glowing reviews of the machine must be written by programmers; certainly they cannot have tried to write any serious applications in Basic!

The interpreter has a whole host of novel effects available. The *Gotoxy* command positions the cursor, but not where it should, and whilst the error can be overcome by flipping the window, large areas of display then disappear. Assignments, such as *A = B* following an *If . . Then . . Else* statement, often corrupt the interpreter, which then regards the variable name as a reserved word, rejecting later occurrences of the name. *For . . Next* loops are randomly rejected unless wholly contained within a single line, and *List, Save, Edit*, etc, often cause the machine to crash.

There are other bugs also, but perhaps the worst affect file handling. These routines are so shot through with faults that they are unusable. *Eof, Loc* and

THIS WEEK'S PUZZLE

Puzzle No 205

When Luigi won a prize of one million lire on the national lottery, he opened a bank account for the money. The account paid an annual interest of eight per cent, paid daily. This meant that every day 8/36500ths of the amount in the account were added to the sum, the bank rounding the sum to the nearest lire.

Exactly seven days after investing the money, Luigi made a cash withdrawal, and thereafter at weekly visits Luigi noticed that the amount remaining in the account was just ten lire more than half of the amount originally invested.

Can you say how much money he withdrew on each of his weekly visits?

Solution to Puzzle 200

The three possible values for 'P C W' are 106, 173, and 340, giving cubes of (respectively) 1191016, 5177717, and 39304000.

Commencing with initial values in the range 102 to 987, the values are converted to a string. Lines 90 to 150 check each character of this string in turn to determine if it matches one of the three originating digits. Each time that this happens, the tally variable (T) is incremented by one.

```
 10 FOR N=102 TO 987
 20 N$=STR$(N)
 30 N1=VAL(MID$(N$,1,1))
 40 N2=VAL(MID$(N$,2,1))
 50 N3=VAL(MID$(N$,3,1))
 60 IF N1=N2 OR N1=N3 OR N2=N3
    THEN 170
 70 C=N*N*N
 80 C$=STR$(C)
 90 T=0
100 FOR F=1 TO LEN(C$)
110 Z=VAL(MID$(C$,F,1))
120 IF Z=N1 THEN T=T+1
130 IF Z=N2 THEN T=T+1
140 IF Z=N3 THEN T=T+1
150 NEXT F
160 IF T=LEN(C$)-1
    THEN PRINT N,C$
170 NEXT N
```

In the examples given, matching digits occur in all but one place in the cube, and so the value of the tally would be equal to the number of characters in the cube minus one. This is determined in Line 160 and any such lines are printed out. These prove to match the examples given in the question.

Winner of Puzzle No 200

The winner is Phil Amey of Esher, Surrey who will be receiving £10.

Rules

The closing date for Puzzle 205 is May 20.

Heavy on the Magick



CONVERSATIONS WITH APEX



THE DOUBT OF RABAK



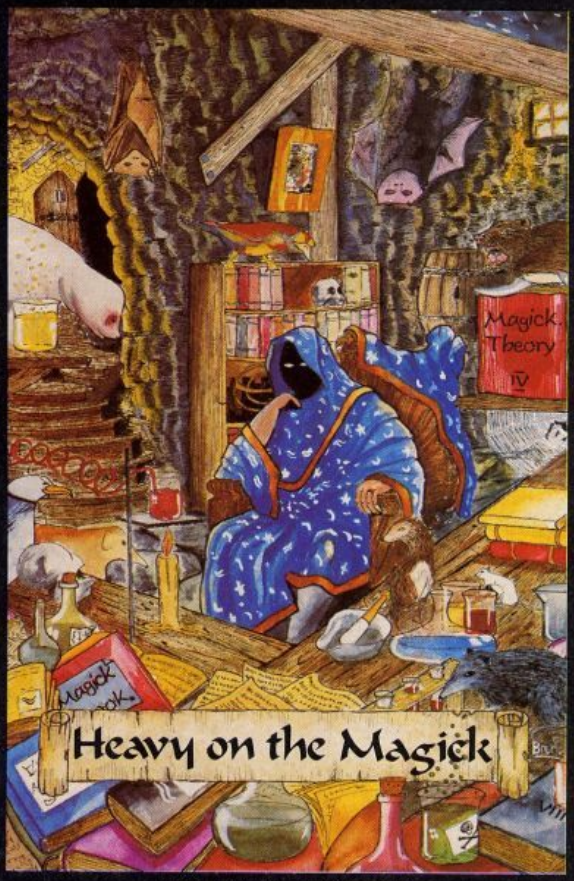
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Letters

Lof simply do not work at all. When strings are stored in a sequential file the interpreter often has the notion of moving all the records up one place, filling the vacant record one with a null string.

At least it is refreshing to find that Atari does not pretend that the faults are not there, or blames user error – it does admit that its Basic is bug-ridden and that it has no fixes in sight to make the ST work properly.

Anyone want to buy a second-hand machine that is guaranteed to entertain for weeks, displays lovely bouncing balls, but cannot access disc files?

David Loverseed
Stockport

Simple sums

The Atari 520ST may well have 512K memory, and a Basic which occupies over 130K, but it cannot appear to do simple sums. Run the first program below, then the second. Now run it again. And again. You may sometimes get the right answer, 36, but more often the machine comes up with six or four. I do hope no-one is running their payroll on it.

```
10 OPEN "0", 1, "SIMPLE SUM"
20 PRINT #1, "12": PRINT #1, "3": CLOSE

10 OPEN "I", 1, "SIMPLE SUM"
20 LINE INPUT #1, A$: LINE INPUT #1, B$: CLOSE
30 A=VAL (A$): B=VAL (B$)
40 PRINT A*B
```

D Hewson
Beeston
Nottingham

Calculated

I have a 48K Spectrum and I am trying to build up a collection of short drawing programs.

However, I am not too hot on calculations using the *Cos, Sin, Pi* functions, etc. I would be grateful if any of your readers that have some of these would send them to me.

I do not mind if they are in Basic 1.8 or M/C.

Mr K Norton
8 Devonshire Close
Staveley, Chesterfield
S43 3PB

Wrong answer

Re Peek and Poke, April 10. I would draw your attention to the letter printed under the heading 'Reserved space' from Lawrence Scotford: 'Is it possible to disable to Interface One on a Spectrum without disconnecting – and so load incompatible software?"

Your answer was no, *but it is!*

On power-up and until any extended Basic commands are issued Interface One uses no computer memory at all. If the Interface One Rom has been called, then it is perfectly possible to do a 'soft' reset of the Spectrum by a simple *Randomise Usr 0* command. Any software not compatible with Interface One will then load normally. On a Spectrum Plus you press the reset button for the same effect.

R J Elliott
Rugby

Readers' Chart No 71

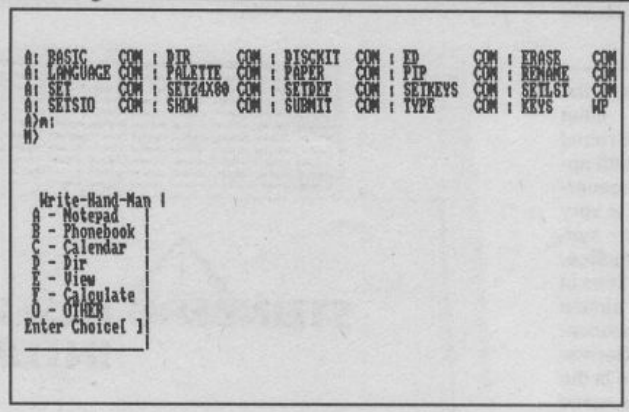
1	(1)	Elite *(Spectrum/C64/Amstrad/BBC)*	**Acornsoft/Firebird**
2	(2)	Uridium *(C64)*	**Hewson**
3	(4)	Lord of the Rings *(Spectrum/C64/Amstrad)*	**Melbourne House**
4	(3)	Commando *(Spectrum/C64/C16)*	**Elite**
5	(7)	Movie *(Spectrum)*	**Imagine**
6	(–)	Bomb Jack *(Spectrum/Amstrad)*	**Elite**
7	(–)	Spellbound *(Spectrum/Amstrad)*	**Mastertronic**
8	(5)	Swords and Sorcery *(Spectrum/Amstrad)*	**PSS**
9	(8)	Gunfright *(Spectrum/Amstrad)*	**Ultimate**
10	(–)	Way of the Tiger *(Spectrum/Amstrad)*	**Gremlin**

Winning Phrase No 71: "Emotive lurid emu", from Chas Holt, of Birkenhead, who wins £25.

Next week's Readers Chart will be the last one.



Write Hand Man



Write Hand Man is a marvellous, if somewhat dubiously titled, utility imported from the US by Hisoft. It has been modelled on a famous program on the IBM PC called *Sidekick*, to see it on CP/M is an eye-opener.

The idea is that the program is loaded into the part of memory that holds CP/M itself, taking between 3 and 5K in the process depending on which option you choose. When running CP/M programs you will never see that this memory is missing (eg, *Newword*) but with others the loss may be more critical. This is particularly true when using CP/M 2.2 where the programs may have had to be squeezed in.

Write Hand Man sits there completely invisible until a special key combination is pressed. The program you are running is frozen (without harm) and a pop-up menu appears giving you several options.

The options are to look at, or enter, notes in a notepad file, study your diary for the next two weeks, look up a phone numbers file, get a disc directory, use a calculator or view a text file on disc (potentially very useful when using a word processor). *Wordstar*-style editing keys are used for entering data.

There is also a communications program supplied that needs to be installed for your particular hardware. Your own purpose written programs can also be called up if they fit within 1.5K.

When finished you are then restored back to your main program exactly where you were before you started.

The drawback is that you need to have the appropriate program files and data files on a disc at hand at all times or the whole thing becomes pointless. This is really not a great hardship, as unless you have lots of data very little room is lost on a disc. You also have to be committed to keeping things like the diary up to date.

On the whole, it is perfect for those who spend a lot of time at the keyboard and who often have two things to do at once. It also suits those who, like me, write everything down on scraps of paper and then lose them. It makes a perfect complement to CP/M programs such as *Newword*.

Tony Kendle

Program *Write Hand Man* **Micro** Any Amstrad CP/M **Price** £25 **Supplier** Hisoft, 180 High Street North, Dunstable, Beds LU6 1AT

Workbench

It would appear that Talent is on to yet another winner with their latest release, *The Assembler Workbench*. Virtually every conceivable facility is combined in a single machine code development package enabling a programmer to assemble about 35K of source code on an unexpanded QL directly from memory; larger programs may be accommodated with microdrive, floppy or memory expansion access.

Compact and elegantly designed, the *Workbench* includes a full screen editor, assembler, monitor and disassembler. Access to the complete operating manual may be made on-screen, utilising the detailed index, while the program is running.

Decidedly user-friendly, the assembler can operate in the conventional two-pass mode or as a one line assembler. The latter facility allows direct modification of machine code using the standard 68000 processor mnemonics.

Trace facilities allow a user to single-step through an entire program whereupon successive instructions are disassembled and printed. Alternatively, up to 20 trace points may be placed in Rom or Ram areas for use with parts of a program. A command is included in the operating system whereby users may probe QDOS routines during a normal single-step trace.

Dual screens are provided pimarily for de-bugging graphics displays or they may be set up for a disassembler/hex dump combination. When disassembly of a sub-routine is completed, the normal display may be restored and the original disassembly resumed.

A facility is included for programming the five function keys for use with SHIFT and the relevant function key number.

The screen editor, which can be used independently of the monitor and assembler, can operate from Ram, microdrive or disc files for modifying assembler or SuperBasic programs or on any text file.

Only one minor point arose during this evaluation which I felt could be improved on: the monitor line lengths are limited to 132 characters. Whilst more than adequate for the majority of applications, some types of files (eg, text games) could require a larger capacity.

Talent's *Assembler Workbench* represents not only good value for money, but is a well planned language utility. The screen editor alone is worth the price of the package, *Workbench* is probably not suitable for the absolute beginner; those starting with machine code couldn't, however, do better than this.

Ron Massey

Program *The Assembler Workbench* **Micro** Sinclair QL **Price** £24.95 **Supplier** Talent Computer Systems, Curran Buildings, 101 St James Road, Glasgow G4 0NS.

Simple Accounts

Since when has doing the books been easy? Since the 14th February this year – that's when Cornix Software converted *Simple Accounts* for the Amstrad CPC range to the Amstrad PCW range.

Setting up *Simple Accounts* for the first time does take quite a while; after making your 'working disc' (backup), you define a template. Before you enter any data, you must name the 'folio' you wish to use; a folio can refer to a day, a week, a month or year. Folio numbering is automatic, but one restriction is that only 200 entries can be made per folio.

When making an entry you give the date, a classification number, which is the column to which the entry is to be made, a reference (which can be anything you like), the amount of the transaction, the VAT and the payment reference.

When all entries for one folio have been made, they can be looked at and analysed in a variety of ways. A straight forward list of purchases/sales can be made which may include either all entries or those within or outside the scope of VAT. This list returns the entry number, the date, the payment reference, the reference, the entry total and the VAT for each item that complies with the requirements.

You can search for entries that have the same payment reference, the same sub-reference or fall into the same column. Analysing produces a summary of transactions for each column and gives the total amount with and without VAT. VAT reports can be made which summarise the VAT input and output for any folio, and calculate the amount you owe to Customs & Excise.

The program is totally menu driven, which makes using it easy for just about anyone. Information, such as lists of entries, can be printed to either the screen or the printer and are nicely formatted.

David Wallin

Program *Simple Accounts* **Price** £34.95 **Micro** Amstrad PCW 8256. **Supplier** Cornix Software, 16 Kneesworth Street, Royston, Herts. SG8 5AA.

Midi Interface

Over the last couple of years the Commodore 64 has been recognised as the best all-round value-for-money music computer, with applications ranging from simple noise generation with its built-in Sid sound chip to very complex control of professional synthesisers when fitted with a Midi interface.

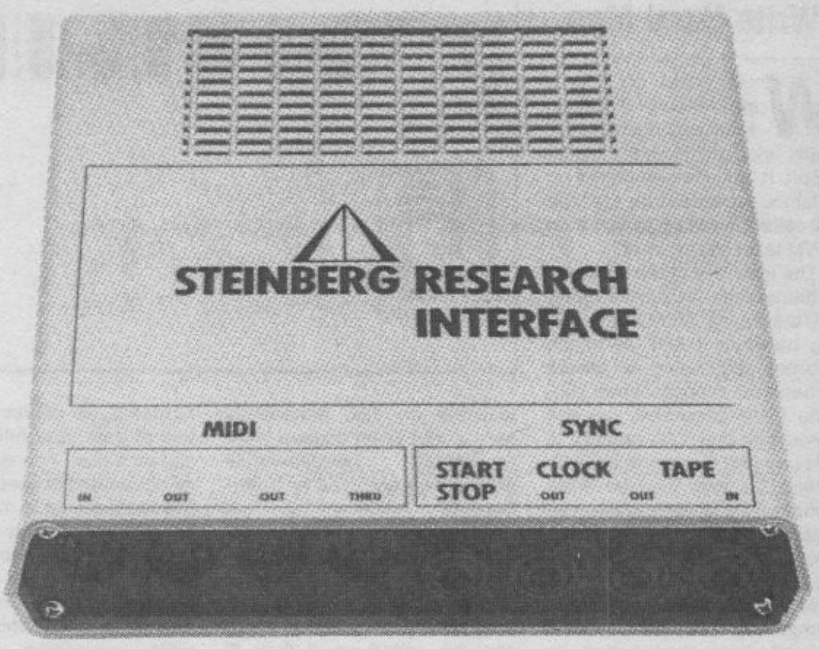
In the past few months the capabilities of the 64 have been expanded to almost unbelievable levels with the announcement of new music packages from Germany and America. One good example is the *Pro 16* from Steinberg, which, as its name suggests, is a 16-channel Midi composer.

As I've indicated, you'll need a Midi interface to run the package, and Steinberg make two – one at around £135 and a simpler version (lacking sockets for tape synchronisation and so on) for nearer £35. The *Pro 16* software is around £90, and, incidentally, is available in an Apple version too, with a 24-channel Atari 520ST version forthcoming.

The cost of Midi synthesisers capable of taking advantage of the Steinberg software is plummeting, with the amazingly powerful Casio CZ-101 reportedly in the shops for £249 cash. The 101 is unusual in being able to play four notes with four different sounds simultaneously, as well as being able to play four or eight-note chords with a single sound.

But the *Pro 16* software can be used with any Midi instrument (this includes drum machines, other sequencers, Midi home keyboards, effects units and so on).

The *Pro 16* package will allow you to record and arrange musical pieces entered from the synthesiser keyboard, either in Step Time (every note you enter plays back with a set length regardless of how slowly you have to do it!) or Real Time (playback is exactly as you entered the notes). All major functions are shown on just one screen.



The larger Midi interface is a flat grey plastic box with Din connectors on the rear for Midi *In* and *Out* and jack sockets on the front for synchronisation to a non-Midi drum machine, to tape, and for connection to a programmable footswitch. Red and Green Led's indicate when Midi information is coming into or leaving the interface, so if your initial connections aren't right you'll have a good idea of where to start.

The software allows 16 polyphonic tracks of music to be recorded – the Real Time option includes a metronome bleep – and the maximum length of one section is 64 bars of any time signature. Normally you'd assign each channel to transmit on the Midi channel of the same number, so that Channel 1 would control a synth set to Midi channel 1, Channel 16 would control a synth (or expander or drum machine or digital delay) set to Channel 16, and so on.

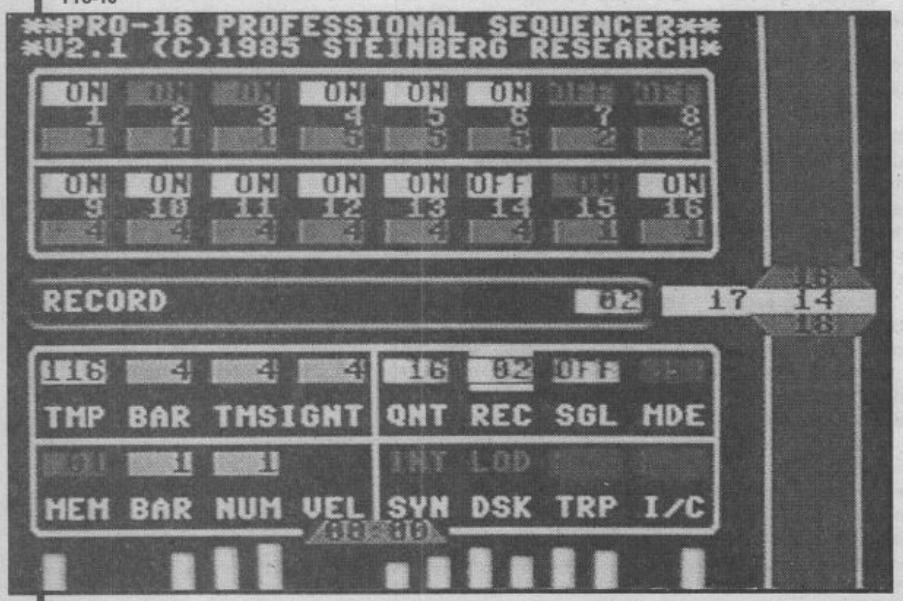
A song 256 patterns long can be defined and this can, of course, be stored to disc. Unusually, many parameters such as tempo and Midi channel can be changed while the music is playing. A series of moving vertical bars indicate that there's some activity on each channel, and other read-outs show bar and beat number, memory remaining and so on. Total capacity is 8000 notes and most of the functions are controlled simply from the Cursor, Function and Shift keys.

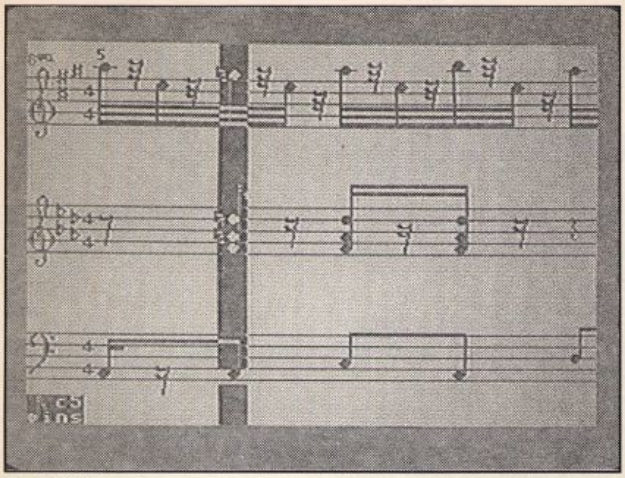
The software will record and play back almost any information which can be transmitted by Midi, so that includes notes, patch (sound) changes, pitch bend, modulation (vibrato), keyboard velocity (affects the loudness of the note on many synths) and so on.

The computer can hold 64 patterns at a time and you can prepare patterns in three ways – Real Time, Step Time (entering single notes or chords from the synthesiser and spaces with the space bar) or quantised real time. This means you can auto-correct your playing so that a misplaced note will be moved to the nearest quarter, eighth, 16th or even 96th beat. Very handy for those whose enthusiasm for the keyboard exceeds their skill on it.

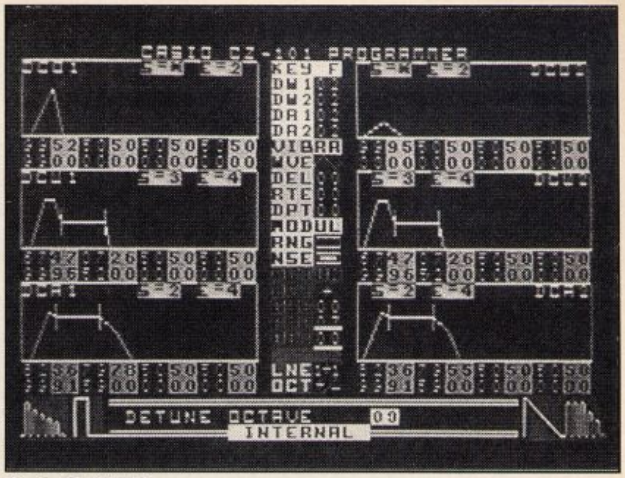
The whole package is laid out in imitation of an unusually flexible 16-track tape recorder; each channel number active at any given time is blocked in green, and inactive channels are white. Underneath each channel is its Midi transmission channel number which can be altered after a piece is recorded – a facility you won't

Pro-16





Store Writer



Casio CZ-101 Editor

find on stand-alone Midi sequencers.

A simple second page allows you to time-shift tracks to compensate for any sync problems, and you can use this page to create long delays or short chorus-like effects using two synths playing the same sound. And there are some very friendly functions on the main page too – if you simply press the "A" key on the computer, every single connected synth sounds an "A" for tuning up!

The same Steinberg interface will, as we mentioned, run a Midi Casio CZ-101 editor, as well as a Yamaha DX7/TX7 editor, an Ensonig Mirage editor, and a comprehensive Score Writer for transcribing existing *Pro 16* sequence files all at extra cost and purchased separately. So you could compose a piece on the *Pro 16*, record it direct from the synthesisers, and prepare a professional-quality transcription in standard musical notation at the same time.

Now that the cost of the C64 has dropped, the investment needed on Midi synthesisers is less significant. Luckily they have come down in price too, and will continue to do so over the next couple of years. If you do go for the *Pro 16* you really are getting a professional music system, but one which is incredibly easy to approach and operate.

Mark Jenkins

Hardware *Steinberg Midi Interfaces £135 and £35 respectively. Real Time/Step Time Software £90.* **Micro** Commodore 64 **Supplier** (via) Oxford Synthesiser Company, Flat 5, Gladstone Court, Gladstone Rd, Headington, Oxford. Tel: 08675 5277.

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It's not all jungles and chit-chat

Christina Erskine looks at artist Hugh Riley's (left) work on Compunet – a selection of which is shown here

One of the most successful features on the Commodore-specific database Compunet is its Art Gallery section. Here, budding artists can upload pictures screens – still or animated – simply as a display, for other subscribers to flip through and view. A new section called Live Action, has also been set up to cater specifically for animated demonstrations, which can include music.

Compunet editor Jane Firbank has run several competitions within the Gallery, which has stimulated interest both from participants and those who just want to see the pictures. The best artists frequently come out top of Compunet celebrity votes compiled by subscribers.

At any one time, there are usually 40-50 artists displaying one or more works of art on these pages.

Among the Gallery's most proficient and prolific artists are Bob Stevenson, who has gone on to design loading screens for Firebird's *Thrust* and its forthcoming game, *Empire*; Stu Jackson, who has written the loading screen for Virgin's yet-to-be-released *Dan Dare*, and Hugh Riley.

Hugh, an unemployed art college graduate, was introduced to Compunet when he won the Commodore International Art Challenge in 1984. A modem was part of his £5000 endowment prize, Compunet had just been set up, and Hugh got going.





Examples of Hugh Riley's work which can be seen on Compunet's Art Gallery section



An enthusiastic member of Compunet, he takes part in many of its sections, but it is his art in the Gallery that most subscribers want to see.

"Compunet always fully encouraged me right from the beginning," says Hugh. "It paid for my first screens, for a start, putting them in its free Hall of Fame pages, which encouraged me to create more pictures for it. I started with low-res pictures, just using the Commodore keyboard, but for the more recent hi-res examples, I use the Audiogenic Koala pad.

"More recently still, I've been doing animated pictures for the Gallery – I did a lot of animation work at Art College."

His animated pieces attracted the attention of Commodore UK in Corby, which provided Hugh with the software to create a series of animation sequences on the Amiga, which will be strongly featured at the Amiga's UK launch at the Commodore Computer show next month.

One of Hugh's personal favourites is the Alligator, a hi-res example pictured here. The tiger is a picture created on the Amiga, showing off the effects created by the choice of colours on the machine.

To see Hugh Riley's work on Compunet, the Art Gallery can be accessed by Compunet subscribers on page 800. Anyone wishing to join Compunet should contact the database at 7-11 Minerva Road, London NW10 6HJ.

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Sport of Kings

Horse racing games don't have a happy history. I remember one including anomalies like four mile flat races while another was totally unplayable – which was probably in its favour. It's a surprise to find this in the 'up-market' MAD range – Mastertronic's way of saying that 'this game is a little bit better than the norm'. Usually true – witness *The Last V8*.

This makes no bones about it – betting is the sport of kings. Up to five people gamble imaginary money on imaginary horses which may or may not get your adrenalin going.

It's all controlled by the obligatory icons, which don't work as smoothly as some I've seen. Maybe icons aren't such a good idea after all. Difficulty levels are based on an optional number of variables, real masochists going for jockeys, weights and ground as well as horses and distances. To play the game properly you need a mathematical mind capable of juggling 20 different ideas at once – not fast reactions.

Win, each way and forecast bets are allowed and some care has been taken to try to simulate the imponderables of following form.

The program uses the Currah speech unit if you want to hear the commentary as read by a superior grade of Dalek and there's a printer option which I'd say is almost obligatory if you want to keep proper track of the form book, otherwise you'll spend all of your time scribbling notes and rechecking tables.

So they're off – with reasonable race graphics – and this is a winner but in a very small field.

Reasonable means the grass looks green and the horses have at least four legs. It rates as moderately visually exciting but no more.

If you're a gambling addict it may help you through Sundays and rained off cards, but otherwise its main value is as an object lesson in how nobody beats the system.

John Minson

Program *Sport of Kings* **Micro** Spectrum 48K **Price** £2.99 **Supplier** Mastertronic Ltd, 6-10 Paul St, London EC2A 4JU



War Play

There's been many a good idea spoiled by poor execution, and Anco's *War Play* is a perfect example.

The idea was to take the key elements from the war game scenario, dress them up with detailed 3D graphics and turn the whole into a combined strategy/arcade game.

You can play against the computer, or against a friend, each side controlling a military force comprising fighter and bomber planes, and tanks.

The action takes place against a scrolling 3D background of airfields, armed compounds and wooded areas.

There are random elements too, such as the anti-aircraft missiles that whip across the screen.

So far, so good. But in one-player mode, it plays about as well as a pianist with boxing gloves on. The aircraft are difficult to control and the lack of shadows makes it impossible to gauge height – crucial for bombing runs.

I had a bit more success with the tank but that too kept bashing blindly into walls and jamming against trees. To be fair, *War Play* was designed as a two-player game and it's far better in this mode where the competitive aspects make up for some of the problems. Far from earth-shattering though.

As a budget-range game, say about £2.99, it would be acceptable, but at full price it can't be recommended.

Peter Worlock

Program *War Play* **Micro** Commodore 64 **Price** £7.95 (£10.95 on disc) **Supplier** Anco Software, Unit 10, Victoria Industrial Park, Victoria Road, Dartford, Kent

Jock

By the year 2112 AD android design will have reached such heights that they'll look like animated dustbins – but at least they'll also have cute names like Jock.

Unluckily, they'll also be able to get lost in time, which is what has happened to our garbage can man.

His only hope of a happy homecoming is to locate the 32 time rings in each of three time zones . . .

If you've not guessed by now, Jock is a maze game with a race against time, as too much exposure to the rings' radiation leads to loss of life. However, there's an extra life for each five rings collected.

The most interesting feature of the game is its scale – it's big. This means that to plan the best route you have to check the neighbouring screens – the initial approach isn't always the best when it comes to dodging the obligatory bouncing nasties.

It all calls for some little planning and a bit of experimentation.

Nothing original then and nothing particularly striking, even at the budget price – but it should hold your attention for a few hours on a rainy spring Sunday.

John Minson

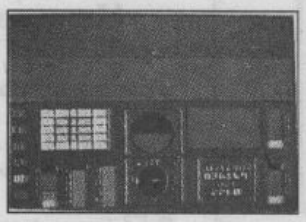
Program *Jock & the Time Rings* **Micro** Spectrum 48K **Price** £1.99 **Supplier** Atlantis Software Limited, 19 Prebend Street, London N1 8PF

Wing Commander

With Biggles taking to the air soon, and Microprose bringing out more and more sophisticated flight simulators such as *Acrojet*, it seems that the popularity of air battle games is endless.

Mastertronic has reissued *Wing Commander*, formerly a full-price Creative Sparks title, at just the right time, by the looks of it. Neither too complex nor too undemanding, it maintains the excitement of air combat without sacrificing all the demands of realism.

The screen presents the familiar through-the-canopy view of the horizon and controls and indicators are stylised but easy to understand. Damage, attitude, compass, fuel, ammo, power, speed and altitude are among the most important.



Your task is to intercept enemy bombers, displayed on a map screen showing your island base, before they destroy their targets. You must then return to base and slow down enough to safely land (although I admit that I haven't yet made it this far).

The combat and refuelling sequences are exciting and the graphics and sound generally very good.

An excellent purchase at £1.99; though not complex enough for simulation freaks or action-packed enough for pure arcade fans.

Chris Jenkins

Program *Wing Commander* **Type** Arcade/simulation **Machine** CBM 64 **Price** £1.99 **Supplier** Mastertronic, 8-10 Paul Street, London EC2

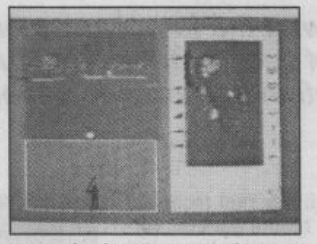
Golf Construction

We've had football, tennis, baseball and American football – not to mention bizarre offerings like canoeing. There have also been a few attempts at golf but none to match this release from Ariolasoft.

The Golf Construction Set is one of the most intelligent sports simulations yet to appear and remains an extremely enjoyable game.

The list of features is vast: four actual courses including Royal St Georges and Wentworth; a full set of clubs – five woods, nine irons, putter, sand wedge and pitching wedge each rated for difficulty and distance; variable weather and course conditions; and realistic handicapping.

You start the game by selecting a course and either pre-set or defineable weather. Conditions like wind, air temperature and how hard the ground is have an effect on the length of your shot. Club selection, direction and power in the swing are joystick controlled. Advanced players can also attempt to deliberately hook or slice their shots.



The graphic displays are excellent. You get a plan view of the hole showing the fairway, rough, bunkers and water hazards, together with pin-placement on the greens. Graphics alongside the display indicate slopes across and along the hole, as well as wind-strength and direction.

A 3D display gives you a realistic view of your ball as it vanishes into the woods, lakes or sand traps, or simply drops out of bounds (I said it was realistic).

When you master the four pre-set courses, you can begin designing your own – modelling them on existing courses or dreaming up nightmares from your imagination.

If you and your 64 have already won every Olympic gold medal going, taken Fulham to the FA Cup Final, re-gained the Ashes, and paddled a kayak over Niagara Falls, *The Golf Construction Set* holds endless new challenges. Whether you're a golfer or not it's highly recommended.

Peter Worlock

Program *The Golf Construction Set* **Micro** Commodore 64 **Price** disc £14.95 twin cassette £12.95 **Supplier** Ariolasoft, 68 Long Acre, Covent Garden, London WC2E 9JH

Sodov the Sorceror

A sorceror's life is infuriating – so much so that the hero of this game is reduced to shouting his name at the dinosaurs which charge his castle gates. Meanwhile his YOPs course apprentice stirs away at the pot in the courtyard, a tender morsel for a hungry monster.

At the start Sodov patrols the castle battlements, blasting away with cross-hair magical targetting. His alchemical arsenal turns the tyranosauri into gold.

His shots are strictly limited unless he ascends a tower and shouts to his lucky star.

However, while a cloud covers the heavenly sparkler there's no recharging, and worse – bolts of lightning sap his strength as does an unfriendly red spider.

Eventually a reptile will reach the gate and crank it up at which point Sodov has to race down the tower and if he fails to zap the kidnapper before it snatches the apprentice snack, it's out to the second screen. Here Sodov lays mines with the cross hairs in an attempt to rescue his assistant. While waiting for the dinosaur to destroy itself he can run round collecting the gold. Then he drags his YOP into the castle, because if he loses all three youths he's a gonner – as he is if the dinosaurs reach him or blast him too often with their breath.

It's a lively scenario with attractive graphics, but the game lacks playability and though it's an entertainingly varied and original shoot 'em up it soon becomes infuriating, so you too may find yourself shouting 'Sodov!'

John Minson

Program *Sodov the Sorceror* **Micro** Spectrum 48K **Price** £2.95 **Supplier** Bug-Byte, Liberty House, 222 Regent Street, London W1R 7DB

Twister

Who knows what evil lurks in human hearts? Twister, 'the blackest-hearted dweller in Hades', according to System 3, which has produced a nice family game . . . the family being the mother and daughter team of Twister and Charlotte. Only one who is pure of heart and mind can do battle against this evil – or failing that, a computer games player!

Despite the packaging blurb which is a fine brew of satanic mumbo-jumbo, warped enough to have any fundamentalist foaming at the mouth, *Twister* turns out to be nothing more than a shoot 'em up – proof, if needed, that the battle against evil is just glorified Space Invaders. Ahh, but what a shoot 'em up. This is just the thing for anybody who has become shell shocked with overly sophisticated games.

The first section is reasonably simple, as you leap across what look like floating typewriter keys, collecting mystical symbols and blasting the hordes of darkness. The next stage is more difficult though as you warp from one side of a grid to the other, still blasting and colleting. So you move from dimension to dimension until you face the wrath of Twister herself.

This is enlivened by some gloriously grotesque graphics for the minions and a well balanced game play making *Twister* a good, fairly mindless diversion.

John Minson

Program *Twister* **Micro** Spectrum 48K **Price** £7.50 **Supplier** System 3, Davis House, 29 Hatton Garden, London EC1N 8DA

Starstrike II

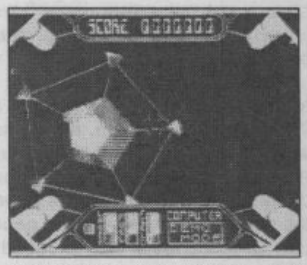
Long time, no Realtime – was once a master of vector 3D games, and of those *Starstrike* was the finest, reducing even a cynical reviewer to cries of 'Whooargh!' and an unholy bloodlust as I blasted the aliens.

Suddenly it's back with a sequel, only now the enemy craft and battle-stations are shaded and solid looking.

First up is the almost obligatory pseudo-*Elite* screen, adding a degree of tactics to the wholesale slaughter you're about to unleash. You need to choose the star system and planet therein for your first bout of outsider annihilation carefully as some are less well defended than others. After this you'll find yourself flying towards an enemy space wheel with its defence pods to blast before docking. It's up to you to co-ordinate with the rotation so that you can dock. Déjà vu, any of you *Elite* out there?

Next comes the iris valve hanger exit which is constantly opening and closing. Next it's into space again to take on the orbital fighters. This is a question of using your radar carefully and calls for extremely sharp reactions.

The ground attack provides some planet flying, and blasting and leads to a ventilation duct sequence before you



immobilise the planet and move on to the next one.

Good solid stuff with graphics that are acceptably smooth, but somehow it failed to thrill me quite as much as its predecessor.

Still, I can think of far worse ways to spend my time.

John Minson

Program *Starstrike II* **Micro** Spectrum 48K **Price** £7.95 **Supplier** Realtime Software, Prospect House, 32 Sovereign Street, Leeds LS1 4BJ.



Commodore and Amstrad conversions – an update

Tony Kendle with the latest news on many long-awaited conversions of successful titles. Plus: the first part of the complete solution to Gargoyle's Marsport

Because the Spectrum and Amstrad computers share the same Z80 microprocessor it is not uncommon to find that both versions of a game are written by the same team, but when it comes to the Commodore, there has to be new expertise brought in and sometimes a new game results.

This has happened recently with the extremely successful and widely acclaimed release of *Zoids*, the Commodore version of which seems very different to the Z80 ones. We've had a few tips for the game already but I would like to ask anyone who has any info for the game, in particular on the Commodore version, to send it in.

Whilst talking about conversions, any readers who were put off by the recall of Amstrad *Elite* by Firebird may be interested to know that all problems have now been fixed and that a fully working version should be in the shops at the time you read this.

General verdict

For some strange reason, the whole industry seems to have trouble keeping up with conversions for Amstrad machines. It's all too common to see the words "Amstrad version soon" (for which we can sometimes read, "possibly never") in the ads, which is strange for what is, after all, the best-selling new home micro for years.

Another Amstrad release that we seem to have been waiting ages for is *Monty On The Run* from Gremlin, the game that rewrote that definition of background music even on the already tuneful Commodore. I understand that this will be appearing by the end of the month and the good news is that Gremlin feels very pleased with the conversion.

One game that I have got many inquiries about, but very few hard facts, is the Amstrad version of *Commando* – in computing terms it is not really that far behind the Spectrum/Commodore versions but it is so eagerly awaited that it seems like ages.

In the meantime Alligata is cleaning up with *Who Dares Wins II*, a very playable game indeed but generally agreed to be not as good as *Commando* on those machines where versions of the latter exist.

For the Spectrum, Ultimate's *Cyberun* has finally surfaced, only to be met with general disappointment all round – "it's just a shoot-up without any real technical innovation" seems to be the general verdict. Being more of a traditionalist and a fan of shoot-ups, I will personally reserve judgement on *Cyberun* until I've played it longer.

It seems that Ultimate can't win these days, and it makes me wonder whether there has been a shake-up behind the scenes with the departure of whoever had the good ideas. The acclaim that games like Ocean's *Batman* received, compared to *Nightshade*, shows that it isn't just the idea of 3D games (for example) that people are bored with – there *is* still a market if the plot is good.

Commodore owners are perhaps in a better situation in that they have a steady trickle of often excellent software from US Gold, most of which is already in the can when the adverts appear. This level of competition has put off some home computer software companies from attempting Commodore conversions, but the good news is that Gargoyle Games, producer of our most consistently innovative and high quality releases, has relented on its 'no Commodore' policy for its next game, *Heavy on the Magick*.

Everyone who has seen this in the office has been knocked out by it – the quality of the animation and the sense of fun are outstanding and Roy Carter of Gargoyle promises that it will be a long time before anyone solves this one.

Sticking with Gargoyle for a bit, readers who ordered copies of our *Arcade Champions Guide* will no doubt be making good use of the *Marsport* map that it contains. However, to mark the occasion of the new game we will give the complete *Marsport* solution over the next few weeks.

Sense of fun

I'll assume that everyone has got at least as far as getting the gun and knows how to keep it charged. For those who haven't seen the map I'll repeat the point that the sept warriors move in consistent directions around a square – if you know which way they go you can often avoid them altogether. If you meet a sept coming at you in the middle of one corridor you can be sure that if you keep walking the next one will be in the middle of the next corridor, and so on. When entering a new area, or a part where the sept go in both directions, wait until one comes into sight and head towards it. In that way you can be sure not to bump into them at the corner.



***Heavy on the Magick* from Gargoyle Games**

Warden robots can go in any direction and are much more tricky. You can wait around until you see them coming, but even this is not foolproof if you want to go into the corridor that they come from – *always* save the game when near them.

The first task is to get the baking tin, water and flour from Daley level. Go to the bakery in Daley and *Factor* these to make a cake. The cake is the key to the bakery. In the bakery you will find some dough.

Also on Daley level you will find some charcoal – keep this.

To get through the danger door on Elis level you must take the dust bomb and put it in the refuse shoot. Do this every time you pass through. Once through you will find access to many more levels – most immediately Joly and Iaxa.

The next job is to get through the danger room on level Iaxa C. To do this you need a gas mask, so combine the gauze you find down on Joly with the charcoal to make a gas mask. With this you can enter the danger room. When the bomb has gone off, place the gas mask in the locker in the danger room for further use.

Once through you will be able to find the ice room which contains an ice pack and a cornet (geddit?). More next week.

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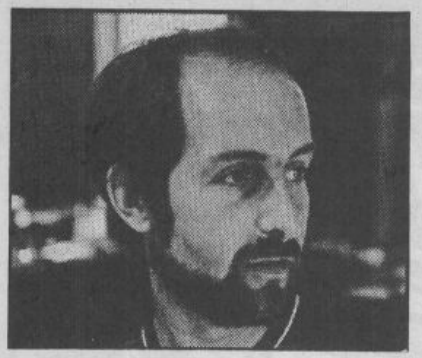
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Adventure designers – growing numbers

Tony Bridge evaluates a new adventure writer for the Spectrum, an area where the Quill has recently reigned supreme

Until quite recently, the only adventure-writing utility available to the general public (apart from one's own programming ability) was Gilsoft's *The Quill*, which regular readers will know gets my personal vote for the most useful program ever released, and surely largely responsible for the current popularity of adventures. There are now a couple more such utilities for the Amstrad, but apart from the ill-fated *Graphic Adventure Writer* from Dream Software, *The Quill* has reigned supreme for the Spectrum. But not for long, I think, if J Hyde has anything to do with it! A copy of his suite of programs, called, with great imagination, *Adventure Writer* landed on the Grand Elf's desk a couple of weeks ago, and it's certainly a viable alternative to the *Quill* route.

The package consists of three modules to aid the adventure writer, and a free adventure written with the utility itself. The emphasis throughout the package is on user-friendliness, and I found the modules to be very much easier to use than *The Quill*, though a similar database style is used. The ease of use is evident from the start from the manual, which is a sheet of A4 folded in half; but this is entirely sufficient for the average dunderhead like me.

The Writer is the first module, and it is this program that the author will use to construct the framework of his or her adventure. The editing menus are all driven by the cursor keys, to select the options, and the plus and minus keys, to change the values. From the colourful main menu you will be able to edit location, object and command texts as well as setting the dimensions of the adventure – thus you can elect to change the number of locations, for example, or the number of objects and so on, each change affecting the other values. The default values set at the start are 120 locations, 150 words in a location or object description and 100 objects, commands and recognised words, and although these can be changed, it is at the expense of the others, so a fine balancing act is called for.

Once the parameters of your adventure are set (up to 800 locations; even more are possible though impractical, and 500 words or 250 objects), the main menu allows selection of one of the other editors, each of which displays a sub-menu after choosing the number of the location, command or object to be worked on. The manual is very short, but is hardly needed, as each menu is almost completely self-explanatory.

Choosing the location editor displays the description box, changed to reflect the length that has been selected from the dimension editor, and into which you will type the description of the location; beneath this is a list of directions available from the location together with the location to which each connects.

Sudden death

The usual compass points are present as well as up and down and a couple of unusual ones – 'time' allows for a location to which the game jumps in certain circumstances (when offered a command that it doesn't recognise), useful for timing situations (for example "you hear footsteps approaching"), while 'chain' joins two locations together, thus allowing for a longer description than you may have decided upon for the rest of the adventure. As well as these options, you may elect to make the location an "end" location, that is one which, when visited, brings about a "sudden death" finish to the game.

Via the command editor, the author then defines each separate command, telling the program which object the player must be carrying before a command is obeyed, what the computer's reply will be (thus, a specific reply to 'help', for example, may be given), any alternative input recognised and so on. Several universal commands, such as *Save, Load, Inventory, Drop, Get* and so on, as well as all the direction commands are built in, and do not have to be defined.

The object editor is a little different: unlike the previous two sections which presented each location or command on its own screen, objects are presented as a list, as each object can be described on one line. Against each number, the author types in the name of the object, the weight and the starting position. The weight parameter is particularly interesting, with each degree of weight returning a different reply (so, one or two means the object can be picked up – if your load is getting too heavy, you'll get "you can't", "don't be silly" and so on).

Weird objects

That's all there is to planning your own adventure: the second module on the tape amalgamates all the information together under your filename and creates a stand-alone game. The third program allows a printout of all the adventure data, though sadly only to a ZX or ZX compatible printer.

Last but not least is the example adventure, *The House of the Dead*, which shows the strengths and weaknesses of the system. The adventure itself is well worth playing, with some interesting problems and locations: I particularly like the way in which the player must choose just a few of a multitude of wierd and wonderful objects near the start. A few locations into the game, and you'll find a one-way connection, so the correct objects must be carried, and the program very sneakily gives vague clues which seem to make every object desirable.

The only drawback is that the *Writer* and the adventure it creates is in Basic, and so the responses are typically 4-5 seconds. Of course, we have now been subjected to *very* expensive adventures with 20 second responses! The screen layout is a little pedestrian, but a graphic utility is promised soon, which I look forward to with relish. Mr Hyde's *Adventure Writer* is the best value I have seen for many months, at just £6.95 (£5.95 for the graphic utility) from J Hyde, 303 Buxton Road, Macclesfield, Cheshire, SK11 7ET.

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Fourth Protocol on Spectrum. I cannot get contact from BT and am unable to travel to Sweden. Keven Zammit, 373 Portsmouth Road, Sholing, Southampton.

Mission 1, Project Volcano on Spectrum. I can't seem to get past the droid in the lift to get to level two. John Stewart, 12 Fairlawn Court, Cherry Orchard Estate, London SE7 7DK.

Deadline on Commodore 64. How do I solve the murder and complete the game? M Tortolano, 11 Douglas Terrace, Stirling, Scotland.

Warlord on Spectrum. How do you get the amulet from the druid? Leslie Battell, 6 Cotman Close, Abingdon, Oxon.

Hitchhiker's Guide on IBM PC. How do you open the screening door – or do you? E Sheehan, Box 100, 7 N Audley Street, London W1.

Hampstead on BBC. I know I need a lathe bracket before getting on the train. How do I get it? Dave Pallant, 16 Deloraine House, Tanners Hill, London SE8.

Empire of Karn on C64. I can't get the diamond nor the sapphire, nor get into the palace and hole in the roof. Lisa Bingley, 49 Logan Street, Mkt Harborough, Leics (0858 66456).

The Hobbit on C64. I am trapped in the goblin' dungeon and cannot reach the window. C. Carrington, 187 Gayfield Avenue, B'Hill, West Midlands, DY5 2BP.

Castle Quest on BBC. How do I use the wand? Jimmy Ho, 119 High Street, Plumstead, London SE18.

Sphinx on Electron. I can't get anywhere except the forest and the lake. Debbie Walker, 112 Stapleton Hall Road, London N4 4QA.

Lord of the Rings on Spectrum. I can't find Strider or scale the wooden gate. Anna Waterhouse, 20 Alan Road, Withington, Manchester, M20 9NG.

Catacombs on Plus/4. I can't remove the boulder blocking the way very early on in the game. David Speeks, 15 Kent Drive, Cockfosters, Herts.

Lord of the Rings on Spectrum. I can't get out of the maze of trees which move. Paul Hunter, 111 Tildelsey Road, Putney, London SW15 3AU.

St Brides on Spectrum. Where is the cat? W Maidens, 32 Varney Road, Hemel Hempstead, Herts.

Supercom on Spectrum. Need code for second level to enter Armageddon. Mrs H Baldwin, 15 Park Drive, Quedgeley, Gloucs.

Sorcerer of Claymorgue Castle on Spectrum. I'm in the castle, I've got a star and some spells – how do I progress from here? Do I use the star? Plt Off A I M Torrance, Officers Mess, RAF Finningley, Doncaster, S Yorks.

Zork II on C64. How do you get past the dragon? Why does the wizard appear? What is circular room? Is it a well? How do I climb up? What do the letters on the wall of the circular room mean? What is the bucket for? How do I get the key from the unicorn? What does it open? How do you get past the wizard's head on the door? What is the candy for? How do I get past the menhir? Darren Gregory, 29 Ludlow Grove, Bispham, Blackpool, Lancs.

Mordon's Quest on Atari. How do I get to the octopus and get past the invisible barrier? John Woolston, 401 Shenley Road, Borehamwood, Herts.

Colossal Cave (550 pt) on CP/M. How do I explore plover room, and how do I open the walk-in safe? David Lore, Carlton House, Todmorden Road, Bacup, Lancs.

Sphinx Adventure on Electron. I cannot find the mouse, G Hamer, 201 Athlone Avenue, Bolton, BL1 6QS.

House on Damned Hill on Spectrum. How do I get into the house? Heather Lofthouse, 30 Graham St, Liverton, Saltburn, Cleveland.

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Doctor Who part 3 the story so far . . .

Time Lords order DOCTOR WHO to regain the plans of the Time Instant Replay Unit and thwart the 'evil' MASTER. Having tricked his way past the Madrag and numerous robot controllers, he enters the Factory Area, finds the electronic spanner and now seeks a route to Security to get the Pass Card.

Crossing the central lift shaft and riding the Monorail gets him to the RHS of the complex. After false starts he climbs a long ladder and crosses to some firmly-closed hatches. The dynamite from the mine may work. However, the spanner has the desired effect.

Investigating further reveals frantic 'CONTROLLER' activity — a sure indication of a sensitive area! Objects in the wall turn out to be security beams, causing General Alert. He retraces his steps, waits and then tries again.

Finally avoiding the guards he finds a room with 3 detonators and below a guarded and locked safe-room (containing the Pass Card). Two floors up a VDU gives him a clue for deciphering the de-coder card.

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TIME RACE

by Shane Dawson

The object of this game is to use the joystick hard, since barriers are placed at random to block your way. There is also a 20 second time limit, and once the time runs out the game ends.

You only have one life, and this is lost when you run into a barrier. Level one is quite easy, since there are only 40 barriers, but as you progress to the next level (after reaching the top of the screen) it becomes harder, as more barriers are placed in your way. Forty more barriers are added at each level. Good luck!

Program Notes

Variables

X – Barrier (x value)
Y – Barrier (y value)
A – number of barriers.
LV – Level.
TI$ – Time.
C – Colour value.
J – X coordinate of player.
Y – Y coordinate of player.
D – Number of barriers (pairs) permitted on each level.
H – Used for collision detection.
P – Start of screen memory.
E,U – Other variables.

Line No

40 Clear variables
50 On error goto line 310
60-90 Set variables & volume & colours. Clear screen.
100-120 Random x and y values for barriers. Print them on the screen.
130 Colour of barriers.
140 Sends to line 90.
150 Set time at 0 seconds.
160-200 Checks joystick input.
210 Collision detection.
220 Print player on screen and check for collision.
230 Sends to line 340.
240 Check to see if time is 20 seconds.
250 Sends to line 160.
260 Colour (brown).
270-290 Print time, level and number of barriers on that level.
300 Returns to joystick input.
310-320 Set colours and clear screen.
330 End program.
340 Sound effects.
350 Printout game over.
360 Time loop. Sends to line 410.
370 Increase level and barriers. Place man at bottom of screen.
380 Set time to 0 seconds.
390 Sound effects.
400 Send to line 80.
410-430 Ask for another game.
440-460 Check joystick input and send to appropriate line number.
470 Send to line 440.

```
10 REM **  -=RACE AGAINST TIME=-  **
20 REM **                         **
30 REM **      BY SHANE DAWSON    **
40 CLR
50 TRAP310
60 A=0:C=2:D=19:LV=1:J=20:K=24:VOL8:P=3072
70 COLOR4,1:COLOR0,1
80 SCNCLR
90 COLOR1,C,4
100 X=INT(RND(1)*37)
110 Y=INT(RND(1)*23)+1
120 CHAR1,X,Y,"■■■
```

of the sea. The white symbol is your ship. You may cruise around this area of sea but may not leave it. Neither may the submarine. At the bottom of the screen there are two gauges which show the current speed and helm position of your ship. Also shown are the number of depth charges and the time left.

To increase the throttle, push the joystick forward (or press the + key). To decrease the throttle, pull the joystick back (or press the ? key). To bear left, push the joystick left (or press the Z key) and to bear right, push the joystick right (or press the X key). Practise manoeuvering your ship. It may take some getting used to and bear in mind that the helm is more sensitive at high speed.

At the start the submarine will be out of sonar range. You must search the sea to find where the sub is hiding. Once in range, the sub will reflect the sound pulse of your sonar. You will hear the faint echo shortly after each pulse is sent out. As you home in on the submarine, the delay between the outgoing and incoming pulses will decrease. Also your sonar will automatically start to pulse more frequently. You should learn to judge the range of the submarine by listening to the pause between the outgoing pulse and its echo.

More program notes and listing next week.

```
10 REM- LOCATE & DESTROY! / A solo ga
me
20 REM- ------------------------------
--
30 REM- by DANIEL J. BISHOP
40 REM- --------------------
50 REM- Version 1.0A
60 REM- Runs on CPC464/CPC664/CPC6128
70 REM- ------------------------------
80 MODE 2:BORDER 11:INK 0,26:INK 1,2
90 SYMBOL AFTER 224
100 SYMBOL 224,0,16,56,56,56,56,56,0
110 SYMBOL 225,0,0,4,24,56,112,32,0
120 SYMBOL 226,0,0,0,0,255,254,0,0
130 SYMBOL 227,0,32,112,56,24,4,0,0
140 SYMBOL 228,0,28,28,28,28,28,8,0
150 SYMBOL 229,0,4,14,28,24,32,0,0
160 SYMBOL 230,0,0,127,255,0,0,0,0
170 SYMBOL 231,0,0,32,24,28,14,4,0
180 DEF FNrange=INT(SQR((SHIPX-SUBX)^
2+(SHIPY-SUBY)^2+SUBZ%^2))
190 DEG
200 ENV 1,20,0,1,15,-1,3
210 ENV 2,9,-1,2
220 ENV 3,6,2,5,12,-1,10
230 DIM SHIP$(7)
240 FOR L0%=0 TO 7:SHIP$(L0%)=CHR$(22
4+L0%):NEXT
250 SCORE%=0
260 LOCATE 1,23:PRINT " H.M.S."TAB(21
)"SPEED"TAB(46)"HELM"TAB(65)"CHARGES"
TAB(76)"TIME"
270 PRINT " ARNOLD":PRINT TAB(13)"IDL
E"TAB(23)"FULL AHEAD"TAB(38)"PORT"TAB
(49)"STARBOARD"
280 MOVE 95,20:DRAWR 0,9,1:DRAWR 161,
0:DRAWR 0,-9:DRAWR -161,0
290 MOVE 295,20:DRAWR 0,9:DRAWR 161,0
:DRAWR 0,-9:DRAWR -161,0
300 MOVE 376,18:DRAWR 0,13
310 ORIGIN 0,56,0,639,359,56:CLG 1
320 SHIPX=RND(1)*639:SHIPY=RND(1)*303
:SUBZ%=RND(1)*15+1:SHIPD%=RND(1)*360:
SUBD%=RND(1)*360
330 SUBX=RND(1)*639:SUBY=RND(1)*303:I
F FNrange<300 THEN GOTO 330
340 SPD%=0:HELM%=0:DC%=10:TM%=10:SONA
R%=-1:SUBZD%=-1:GAMEND%=0
350 TP$="...LOCATE & DESTROY!...":GOS
UB 1640:PRINT CHR$(8);CHR$(32)
360 S0$=INKEY$:IF S0$<>"" THEN 360
370 WHILE S0$="" AND JOY(0)=0:S0$=INK
EY$:WEND
380 FOR L0%=0 TO 2000:NEXT
390 TM0=TIME
400 GOSUB 870
410 RANGE%=FNrange
420 IF SUBZ%<=3 AND RANGE%<=6 THEN GA
MEND%=1:GOSUB 1120:GOSUB 1490:GOSUB 1
360:GOTO 320
430 IF TM%=0 THEN GAMEND%=2:GOSUB 149
0:GOSUB 1360:GOTO 320
440 IF SUBZ%<=3 AND RND(1)<0.1 AND RA
NGE%<100 THEN GOSUB 1400:IF GAMEND%=3
 THEN GOSUB 1120:GOSUB 1490:GOSUB 136
0:GOTO 320
450 SOUND 2,1000-SPD%*5,38,SPD%*0.3+1
460 IF SONAR% THEN GOSUB 1260:SONAR%=
0:IF RANGE%<150 THEN AFTER 10+RANGE%^
1.3/5 GOSUB 1290 ELSE AFTER 150 GOSUB
 1330
470 IF INKEY(54)=0 THEN GOSUB 810:TP$
="...LOCATE & DESTROY!...":GOSUB 1640
:PRINT CHR$(8);CHR$(32)
480 USER%=JOY(0)
490 IF INKEY(28)=0 THEN USER%=USER%+1
500 IF INKEY(30)=0 THEN USER%=USER%+2
510 IF INKEY(71)=0 THEN USER%=USER%+4
520 IF INKEY(63)=0 THEN USER%=USER%+8
530 IF INKEY(47)=0 THEN USER%=USER%+1
6
540 IF (USER%>=16 AND USER%<=24) THEN
 GOSUB 1050:GOSUB 1360:GOSUB 870 ELSE
 570
550 IF GAMEND%=4 THEN GOSUB 1120:GOSU
B 1490:GOSUB 1360:GOTO 320
```




CAPSCLOCK

by D Witheroe

Carrying on from last week, you should now have your Capsclock code installed. Of course, there's no point in adding a clock to Quill if it doesn't tell the correct time. That means setting the system clock before you start. To take the strain out of this, I've written a clock setting routine which can be merged into the 'boot' program.

Enter the program below, taking care to get the line numbers exactly right. Save it as, say, *mdv1-timeset*; now load the original 'boot' file, and *Merge mdv1-timeset*. Note that you must load 'boot' and merge 'timeset', *not* the other way about. Then delete the original 'boot' file and save the modified file as 'boot'.

On the subject of modifying Capsclock, the window positions chosen were selected specifically to suit Quill in 80-column mode; if you wish to use the program in another mode or with another program you may have to alter these position. You may want to change the *Paper* and *Ink* colours used, and perhaps add borders to the windows.

The relevant numbers in the data statements of the Basic loader (printed last week) can be altered according to the table below. But you'll no longer be able to use the error-checking in the loader program, since some checksums will no longer be correct: hence the option to turn the error-checking off.

For those values which require two numbers to be altered, you divide the value you want to enter by 256; the result of the division goes in the first number, and the remainder goes in the second. If you want to add a border to either or both of the windows, you must also adjust the window width and height to make room for the border. The formulae for calculating the necessary window size are:

Window width = Text width + (border * 4)
Window height = 10 + (border width * 2)

Text width for the Caps Lock window is 54; for the clock window, 120. That's if you are running the program in monitor mode. I haven't experimented with TV mode, but I should think you'd have to double these values to get Capsclock to run in that mode.

Copies of both programs can be obtained from me, on microdrive for £4. Cheques to 19 Glen Lyon, St Leonards, East Kilbride, G74 2JJ.

continued over the page ►

Programming: QL

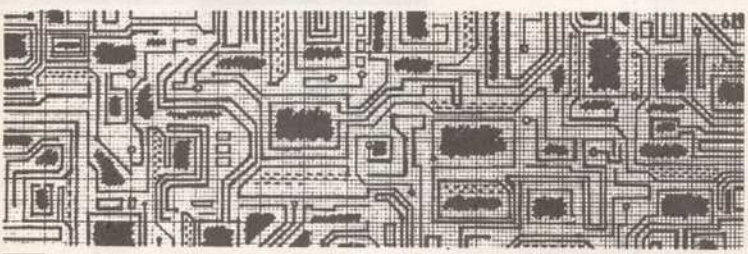
Line	Column	Orig Num	Alteration
			To alter clock window:
20240	1	0	Border colour
20240	2	0	Border width
20240	3	0	Window paper colour
20240	4	7	Window ink colour
20240	5,6	0,120	Window width
20240	7,8	0,10	Window height
20250	1,2	0,162	X-coord of top left-corner of window
20250	3,4	0,246	Y-coord of top left corner of window
			To alter CAPS LOCK window:
20250	5	0	Border colour
20250	6	0	Border width
20250	7	0	Window paper colour
20250	8	4	Window ink colour (colour of 'CAPS:')
20260	1,2	0,54	Window width
20260	3,4	0,10	Window height
20260	5,6	0,114	X-coord of top left corner of window
20260	7,8	0.236	Y-coord of top left corner of window
			Other values that can be altered:
20160	2	4	Colour of 'CAPS:'; set to same as window ink
20130	6	7	Colour of CAPS LOCK indicator; need not be same colour as window ink
20050	3,4	1.194	Initial start delay; length in QDOS cycles (initially 450)

```
1 CLEAR
2 WINDOW 512,256,0,0:CSIZE 1,0:PAPER
  2:CLS:GO SUB 10:CSIZE 2,1
8 EXEC mdv1_capsclock:EXEC_W mdv1_quill
9 OPEN #1,scr:OPEN #2,scr:STOP
10 WINDOW 180,160,156,50
11 PRINT DATE$:INPUT ('Reset clock?
  [Y/N]')!a$
12 IF a$='N' OR a$='n':WINDOW 512,256,0,0:
  CLS:RETurn
13 INPUT ('Year [eg. 1986]')!y:INPUT ('Month
  [1-12]:')!m:INPUT ('Day [1-31]:')!d
14 INPUT ('Hour [1-23]:')!h:INPUT
  ('Minutes:')!n:INPUT ('Seconds:')!s
15 SDATE y,m,d,h,n,s:CLS:GO TO 11
```

For brevity's sake, this routine has not been error-trapped; if you input a string rather than a number into one of the date parameters, or even just <ENTER>, the program will crash. If you regularly boot from F2, change line 10 to:

```
10 WINDOW 360,160,66,50
```

Spectrum



HEADER

by Paul Murray

This week, we continue our series of machine code utilities. Header is a routine that reads the header information for a recorded file and provides detail of that file.

As well as giving the name of the file and its type (eg, *Bytes*, *Program* etc), this routine gives its length and start. In the case of arrays, start is meaningless and may be ignored. For code, it indicates the address at which the code should be loaded, and for programs it gives the line number from which auto-running occurs.

If the program does not auto-run, then the message "No Line" is displayed. Length indicates the total length (in bytes) of the file. The routine is called by *Randomize Usr 64010*.

Type in the code with the Loader program we printed in Vol 5 No 14 – which, incidentally, will work a little better if you insert **50** For n = start to finish Step 5

Also, on the subject of errata, we also publish this week, the remainder of the Trace code, printed in the same issue. Next week, an On Error command, plus a Block Delete facility.

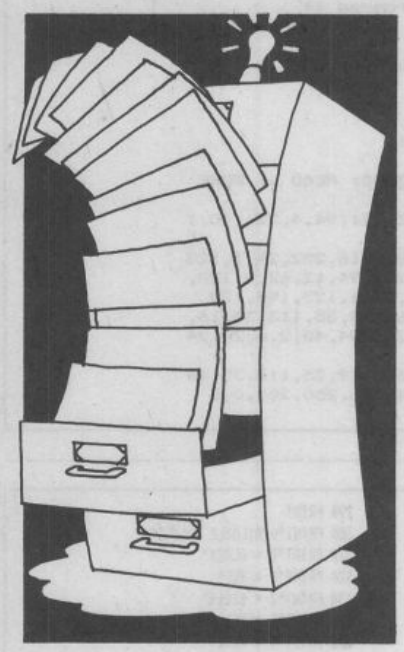
Meanwhile, Paul Murray is still selling the whole suite of programs, on tape, for the sum of £3. Write to him at 5 Hanham Mills, Hanham, Bristol B15 3NU.

```
64010  62   2   205   1   22
64015  221  33  240  249  175
64020  17   17   0    55  221
64025  229  205  86   5   221
64030  225  48   238  221  229
64035  221  126  0    17  192
64040  9    205  10   12   6
64045  10   33   249  249  126
64050  229  197  215  193  225
64055  35   16   247  62   13
64060  215  24   27   128  83
64065  84   65   82   84   73
64070  78   71   32   65   84
64075  186  76   69   78   71
64080  84   72   186  78   79
64085  32   76   73   78   197
64090  17   63   250  175  205
64095  10   12   221  225  221
64100  78   13   221  70   14
64105  221  229  221  126  0
64110  167  32   15   120  254
64115  128  32   10   62   2
64120  17   63   250  205  10
64125  12   24   6    205  43
64130  45   205  227  45   62
64135  13   215  17   63   250
64140  62   1    205  10   12
64145  221  225  221  78   11
64150  221  70   12   205  43
64155  45   205  227  45   62
64160  13   215  201  62   1

CHECKSUM=16926
```

```
62500  97   254  58   202  142
62511  243  33   75   244  229
62516  79   231  121  254  254
62521  40   80   254  250  194
62526  68   27   33   70   244
62531  195  85   27   6    203
62536  5    208  244  205  84
62541  31   56   2    207  255
62546  58   122  243  167  32
62551  16   62   127  219  254
62556  15   48   249  62   127
62561  219  254  15   56   249
62566  24   9    61   245  4
62571  255  16   254  241  32
62576  247  205  203  10   126
62581  32   76   42   66   92
62586  205  110  35   253  126
62591  10   40   18   71   126
62596  230  192  120  40   11
62601  207  255  193  42   85
62606  92   62   192  166  192
62611  178  254  1    206  0
62616  96   35   94   237  83
62621  69   92   35   94   35
62626  86   235  35   35   34
62631  85   92   235  34   93
62636  92   87   30   0    253
62641  54   10   255  21   253
62646  114  13   202  142  243
62651  20   205  139  25   40
62656  3    207  32   223  254
62661  13   40   196  254  58
62666  202  142  243  195  138
62671  28   193  239  2    56
62676  235  205  233  52   218
62681  140  244  195  143  243

CHECKSUM=42615
```



DATA TRANSFER

by Ian Coe

Many Atari ST users will have upgraded from other computers and, like me, may have quite a large collection of programs and document files and the daunting prospect of retyping them onto the new system prompted me to see if a way could be found to transfer the files using the RS232 interface on the Atari.

My old computer system was a 48K Spectrum, Interface 1 plus Microdrive and I had some 2 Mb of *Tasword 2* and *The Last Word* files on microdrive cartridge. I have transferred almost all of them using the link and software described below with only a small amount of work necessary to convert them to *1st Word* files.

Although the RS232 configuration, lead connections and programs are for Spectrum-Atari transfer, ASCII files can be transferred from any computer with an RS232 port using this network. For example, there seems to be no reason why the RS423 port of the BBC microcomputer could not be used for this transfer process. A program would need to select the port using **FX5,2,* then *VDU* and *PRINT* commands to send the files. I have deliberately written the programs to be as portable and as simple as possible, without any complicating features – they only have to work once for each file transferred, not to look clever!

The RS232 configuration on the Atari ST is set from GEM desktop as shown. The baud rate may be set to lower than 9600 if necessary, but in my system this was perfectly satisfactory. Any change should be reflected in the *FORMAT* command given to the other computer.

It took a good deal of trial and error before the correct pin connections were found. A flat ribbon cable with a Male 9 way D connector was used on the Spectrum end and a Female 25 way D connector on the other. The pin connections for the Spectrum-Atari link should be as shown in the table.

Spectrum *Tasword* files are held on microdrive as code loaded to address 32000. *The Last Word* Data files can be transferred direct using the *Move* command, or can be loaded into memory and then transferred. Fig. 2 lists a very simple Spectrum Basic program that loads the Tasword file, opens the channel and then prints the ASCII bytes onto it.

Spectrum				Atari
	TX 2		2 TX	
	RX 3		3 RX	
9 way D	DTR 4	connected	20 DTR	25 way D
plug (male)	CTS 5	to	5 CTS	plug (female)
	ground 7		7 ground	

At the Atari end of things, use is made of the *Inp(n)* command. This reads a byte from a selected input port, where the (n) suffix is used to specify the assignment. *Inp(1)* reads a byte from the RS232 port, the status being determined by a negative port value. Thus *INP(-1) = 0* indicates no character is available. Fig. 3 gives an Atari Basic program that takes the bytes and reads them onto disc in a format that *1st Word* can use.

The computers are linked with the cable prior to switch-on and the programs loaded into the respective computers. The name of the file to be transferred is entered into the Spectrum together with its length.

The Atari Basic program is run, needing only a file-name to begin. A *.DOC* extension is added automatically to allow the *1st Word* program to identify it properly. After a short period of time the Spectrum screen should flash periodically and the Atari disc drive growl as the data is transferred.

A fair bit of trial and error is needed, but using the ideas above it should be possible to make working copies of most Tasword files onto the Atari ST.

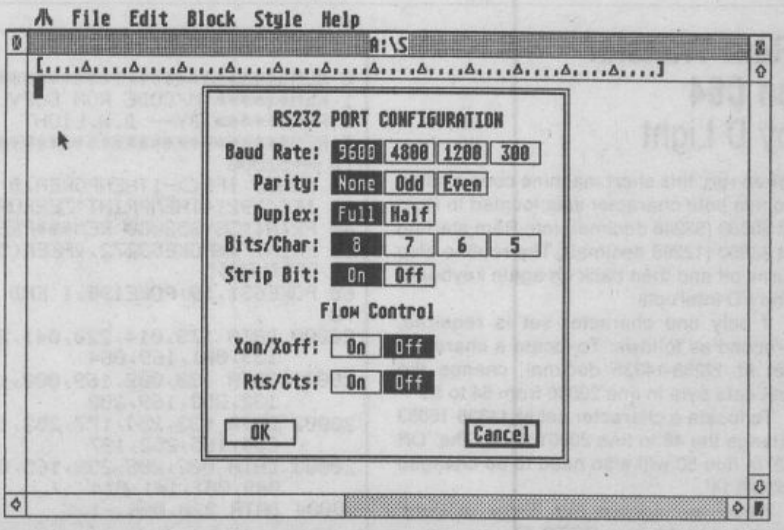
Fig. 2 Spectrum Program

```
10  FORMAT "b";9600:REM          ( the default value )
20  OPEN#4;"b"
30  INPUT "Name of file : ";a$
40  INPUT "Length of code : ";c
50  LOAD* "m";1;a$ CODE:REM      ( where m is drive number)
60  FOR x = 32000 TO (32000 + c)
70  REM PRINT CHR$(PEEK(x));: REM ( If you want to see it )
80  PRINT#4;CHR$(PEEK(x));
90  NEXT x
100 CLOSE#4
101 REM ..................................
110 PRINT "Program transferred- press any"
120 PRINT "key to get back to Basic"
130 PRINT "Use [Control]+C or mouse to"
140 PRINT " <BREAK>. Enter CLOSE 1 "
150 PAUSE 0
151 REM ..................................
160 OPEN#4;"b"
170 FOR s = 1 TO 128
180 PRINT#4;" ";
190 NEXT
200 CLOSE#4
210 STOP
```

Fig. 3 Atari Program

```
2     on error goto 200
5     clearw 2:fullw 2
10    input"filename: max 6
      letters - .DOC will be
      added";f$
15    let f$=f$+".DOC"
20    open"O",#1,f$,1000
30    let l= 64
50    for a=1 to (l-1)
60    let x= inp(1)
70    print chr$(x);
80    print#1,chr$(x);
90    next
95    let x = inp(1)
100   print chr$(x)
110   print#1, chr$(x)
120   goto 50
200   close 1
210   stop
```

Fig. 1 RS232 settings on the Atari



Border on Spectrum
by Keith Ratcliffe

This is a short routine that creates a flashing border around part of the top of the screen. Alternate squares flash opposite to each other, so that a sense of movement is obtained – quite like a flashing neon sign.

It is called by a FN call and the three parameters are ink, paper and lines – the latter being the number of lines the 'box' extends down the screen.

The routine is protected from lines being greater than 20, and is located in the print buffer.

```
    1 REM ** RUN program **
  2 REM ** then GOTO 20 to repeat*
  5 GO SUB 9000
 10 DEF FN u(i,p,l)=USR 23296
 20 INPUT "ink";i
 30 INPUT "paper";p
 35 INPUT "lines";l
 40 LET d=FN u(i,p,l)
 50 STOP
9000 FOR i=23296 TO 23390: READ a: POKE
i,a: NEXT i
9010 DATA 221,42,11,92,221,94,4,221,70,1
2,62,0,128
9020 DATA 40,7,123,198,8,16,252,24,1,123
,198,128,79,221,70,4,221,94,12,62,0,128,
40,7,123,198,8,16,252,24,1,123,198,128
9030 DATA 33,0,88,6,16,119,35,113,35,16,
250,245,221,70,20,62,20,184,48,2,6,20,24
1,203,56,30,31,22,0
9040 DATA 113,25,119,35,119,25,113,35,16
,246,6,16,113,35,119,35,16,250,201,0,0
9050 RETURN
```

Colour Control on BBC
by N Whiteley

Mode 7 on the BBC micro is the ideal mode for adventure programs and other games/applications which produce a lot of text since the characters are clear, well defined and you have over 20K in which to write your program.

But there is a problem in that if you are using colour, you start getting a mass of Chr$'s for every line of text that you display (for paper, ink, flashing and double height) which not only takes a lot of memory, but is very hard to understand. Not only that, if you clear the screen all the paper and ink colour gets lost and you have to do it all over again.

Colour control is a very useful utility which saves memory, makes displays extremely easy to produce more elegant and when you clear the screen, the paper and ink colour will still remain. Just type in the program and when you run it you will be given the command syntax, instructions and a demonstration.

```
  10 REM ********************************
  20 REM **                            **
  30 REM ** Colour Control for the     **
  40 REM ** BBC Micro in mode 7         **
  50 REM ** (C) N.A.Whiteley.          **
  60 REM **                            **
  70 REM ********************************
  80
  90 REM ** DEMONSTRATION PROGRAM &    **
 100 REM ** INSTRUCTIONS FOR USE.... **
 110
 120 MODE7
 130 PROCCOLOUR(4,2,0,1,0,1,0,0)
 140 PRINT"Colour control By N A Whitel
ey."
 150 PRINT"Colour control By N A Whitel
ey."
 160 PROCCOLOUR(INT(RND(1)*6)+1,INT(RND
(1)*6)+1,0,0,2,24,0,2)
 170 PRINT"SYNTAX:"
 180 PRINT"PROCCOLOUR(P,I,F,H,B,E,C,L)"
 190 PRINT
 200 PRINT"PARAMETERS:"
 210 PRINT"P = PAPER (0-7)"
 220 PRINT"I = INK   (1-7)"
 230 PRINT"F = FLASH (0=OFF 1=ON)"
 240 PRINT"H = HIEGHT(0=OFF 1=ON)"
 250 PRINT"B = BEGIN (0-24) ROW"
 260 PRINT"E = END   (0-24) ROW"
 270 PRINT"C = COLUMN(0-39) TAB"
 280 PRINT"L = LINE  (0-24) TAB"
 290 PRINT
 300 PRINT"AVAILABLE COLOURS:"
 310 PRINT"0 = BLACK"
 320 PRINT"1 = RED"
 330 PRINT"2 = GREEN"
 340 PRINT"3 = YELLOW"
 350 PRINT"4 = BLUE"
 360 PRINT"5 = MAGENTA"
 370 PRINT"6 = CYAN"
 380 PRINT"7 = WHITE"
 390 PROCCOLOUR(INT(RND(1)*6)+1,INT(RND
(1)*6)+1,0,0,2,24,0,2)
 400 A$=INKEY$(300)
 410 GOTO390
 420
 430 REM ** COLOUR CONTROL ROUTINE   **
 440
 450 DEFPROCCOLOUR(paper%,ink%,flash%,h
eight%,begin%,end%,column%,line%)
 460 IFpaper%=0 THEN col=156 ELSE col=1
57
 470 display$=CHR$(paper%+128)+CHR$(col
)+CHR$(ink%+128)+CHR$(137-flash%)+CHR$(h
eight%+140)
 480 VDU26
 490 FOR row% = begin% TO end%:PRINTTAB
(0,row%);display$;:NEXT
 500 VDU28,5,24,39,0
 510 PRINTTAB(column%,line%);
 520 ENDPROC
```

Rom Transfer on C64
by D Light

When run, this short machine code routine copies both character sets located in Rom at $0000 (53248 decimal) into Ram starting at $3000 (12288 decimal). The routine also turns off and then back on again keyboard and I/O interupts.

If only one character set is required, proceed as follows: To locate a character set at 12288-14335 decimal, change the last data byte in line 20000 from 64 to 56.

To locate a character set at 14336-16383 change the 48 in line 20001 to 56. The 'OR 12' in line 50 will also need to be changed to 'OR 14'.

When run, ignore the 'Error in Data' message and type – *GOTO 40.*

```
0 REM*******************************
1 REM****** M/CODE ROM COPY ******
3 REM****** BY-- D.W.LIGHT  ******
5 REM*******************************
10 A=52000
20 READD:IFD<>-1THENPOKEA,D:A=A+1:C=C+D:GOTO20
30 IFC<>9214THENPRINT"□ERROR IN DATA":STOP
40 PRINT"□SYS52000:REM***PRESS [RETURN]"
50 PRINT"□■POKE53272,(PEEK(53272)AND240)OR12:REM***PRESS
   [RETURN]"
60 POKE631,19:POKE198,1:END
70 :
20000 DATA 173,014,220,041,254,141,014,220,165,001,041,251,
      133,001,169,064
20001 DATA 133,002,169,000,133,251,169,048,133,252,160,000,
      132,253,169,208
20002 DATA 133,254,177,253,145,251,200,208,249,230,252,230,
      254,165,252,197
20003 DATA 002,208,239,165,001,009,004,133,001,173,014,220,
      009,001,141,014
20004 DATA 220,096,-1
```

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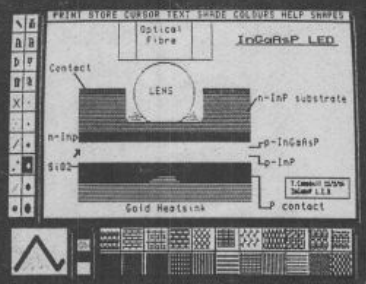
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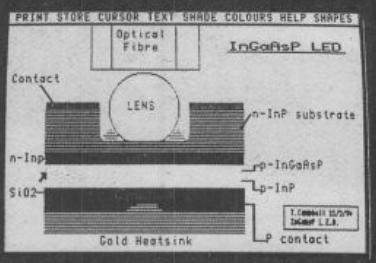
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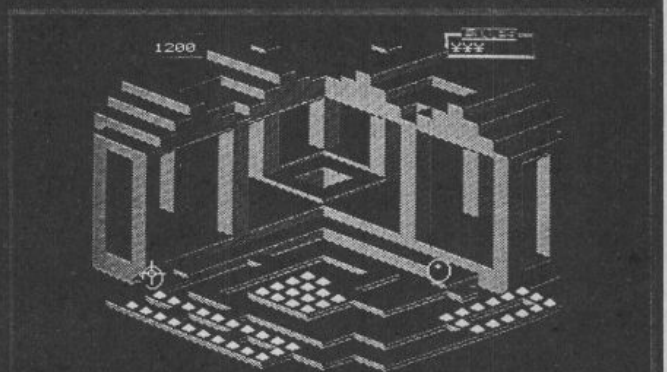




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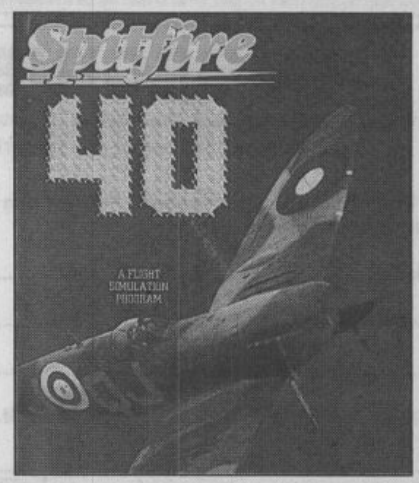


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T	M	E	D	I	T	O	R	D
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T	K	E	X	I	R	O	R	W
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O	E	C	Y	D	M	L	N	L
R	H	Y	C	H	B	I	B	U
K	C	L	A	T	I	G	I	D

How to enter

This is the third part of the competition and, as usual, the grid contains six words (of at least four letters) related to microcomputing. The words may be written forwards or backwards, up or down (but not diagonally).

Once you've found the 18 words, you'll need to hold on to them for just one more week. In the next issue, you'll find full details on how to enter, together with the official entry form. If you've stayed with it so far (and you all have, of course) it would be unspeakably foolish to miss out next week's issue. So why not have a word with your friendly, local newsagent?



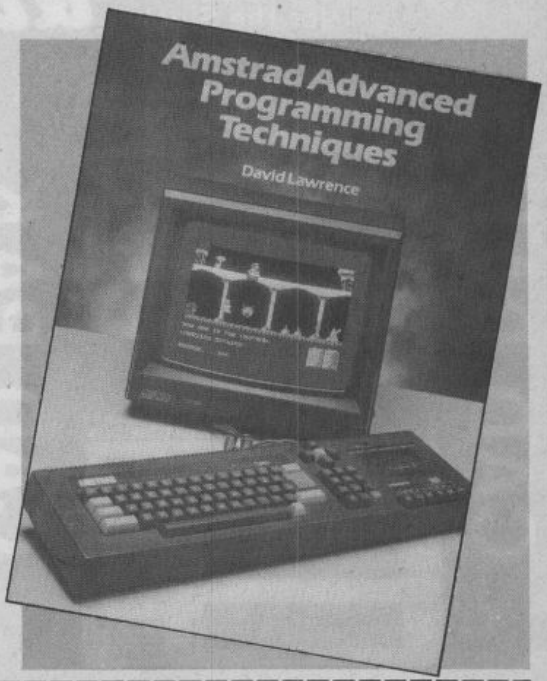
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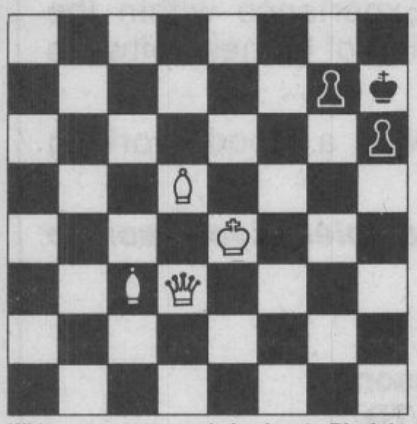
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COLOSSUS CHESS 4 WINNERS!

Many thanks to everybody who entered our *Colossus Chess 4* competition (*Popular Computing Weekly*, March 6). We had a tremendous response, so it's taken a while to sort through them all; especially as the entries were of a very high standard.

The solution to the problem, shown below, started with the key move of White's queen to square KR3. Black has no effective reply to this – whatever it does, White will checkmate next move.



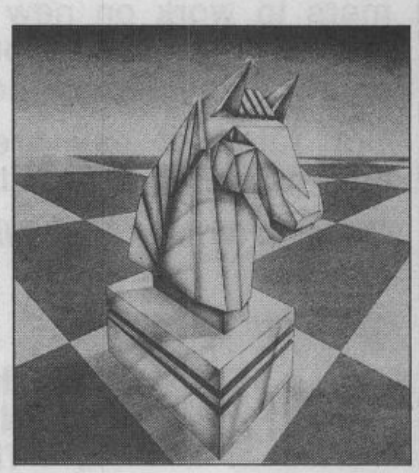
White must move and checkmate Black in two moves

Solution

1	Q – KR3	K – KN3
2	Q – KB5 + +	
1	Q – KR3	K – KR1
2	Q × P + +	
1	Q – KR3	P – KR4
2	Q × P + +	
1	Q –KR3	P – KN3
2	Q – Q7 + +	
1	Q – KR3	P – KN4
2	Q – KB5 + +	

The winners, who should have received their copies of *Colossus Chess 4* by now, were:

A Torrance, Salisbury, Wilts; R Mackintosh, Helensburgh, Dumbartonshire; L W Vincent, Stowmarket, Suffolk; John McDonnell, Pickering, N Yorks; A Tester, Luton, Beds; E Millar, Blackley, Manchester; John Gould, London N14; L A Wootton, London SE1; G L Moore, Maidenhead, Berks; M D Hurd, Bargoed, Mid-Glamorgan; E Elias, Bristol; Mark Haigh-Hutchinson, Withington, Manchester; G A Salter, Oxford; S R Briggs, Banbury, Oxon; A S Kerr, Newton Abbott, Devon; D Clewley, Borehamwood, Herts; S P Bellis, Rhyl, Clwyd; Paul Fairclough, Mold, Clwyd; David S Gordge, Northolt, Middx; L Crossley, Halifax, W Yorks; R J Halsall, Wokingham, Berks; P C Robertson, Hollywood, Birmingham; Paul Davies, Solihull, West Midlands; Jonathan Davis, Harvington, Nr Evesham; Warren Reid, West Drayton, Middx.



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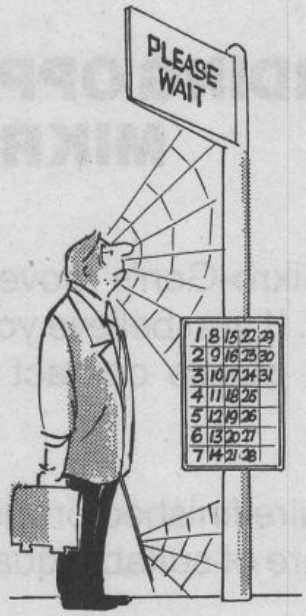
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AMX Mouse (Amstrad) £60 Cirkit Modem £30 DR Pascal £40, Vic 1520 Printer Plotter £50, Casio Graphic Calculator FX-7000G £60. All as new and boxed.

PRINTER Alphacom 81 (thermal) with interface for 64 or Vic-20 and five rolls of paper £50. Telephone John Ryden 0443 227056, will deliver 20 miles around Cardiff else buyer collects.

WANTED: A Jupiter Ace (no PSU/manual). I don't care what state the keyboards in, just tell me what you want for it. J. Kennedy, 32 Bayview Road, Bangor, Co. Down, N. Ireland BT19 2AR.

ATARI 130XE 128K computer, tape recorder, joystick, Trak Ball, nine games, book on machine code, all boxes, leads, manuals etc., four months old, bargain at only £199..95. Tel. Harrogate 886327.

IT'S taken me two months to accurately map out CZ envelopes. You might find the results useful. Call (0602) 324166 for further information, ask for Julian.

AMSTRAD 6128 with colour monitor, only three months old, with dust covers, plus over £50 of disk software, plus blank discs and Amstrad system disks, original packaging, £350. Horley 771876.

ATARI US doubler + Spartados £50. Flight Simulator II disk £25. Sam Speech Synth £20. Diskey Disk utility programme £15. All vgc. Telephone after 6pm 01-540 0527.

ATARI 800 recorder, disk drive, printer, touch tablet, well over 100 games including latest releases on tape ROMS disks plus many utilities, Atari writer, SAM etc, £450. Basildon 0268 26804.

CBM64, CZN, Prism 2000 modem with comms software, m/c language tutor and more software. Phone 01-892 6712 evenings after 8.00 and anytime weekends, ask for Colin or leave message.

OHIO CIE super board, metal case, 16K RAM, Cegmon basic 4 and 5 ROMS 48 x 32 display, 5 Amp PSU, manuals, software. A real enthusiasts machine for £49. Tel. Atherton (0942) 895642 (after 6pm).

SEIKOSHA GP80A dot matrix printer, Centronics parallel, with 1500 sheets Fanfold paper and ribbons, why buy a thermal? Get into print for only £49. Tel. Atherton (0942) 895642 (after 6pm).

AMSTRAD CPC 6128 colour, 6 months old, 6 disks, joystick, light pen, firmware manuals, basic tutorial, £130 worth games and utilities, total cost was £600, only £450 ono wanted. Tel. 0705 831713 6pm-8pm.

MACINTOSH software, microsoft Multiplan and chart £75 each, also MacDraw £70, surplus personal software including documentation, hardly used. Tel. 01-948 7485.

SPECTRUM modem, VTX 5000 complete with in-built software, connector, Prestel directory and application form. Still boxes, perfect condition, £38 ono. Phone 051-334 7804.

AMSTRAD CPC464 colour monitor, excellent condition, complete with £315 worth top software including Tau-Ceti, TLL, Match Day, Highway Encounter, Sweevo's World and many others, £295 ono. Telephone 0630 57129, will post.

ATARI 1040 STF 1MB RAM, monitor, mouse, disk drive, software etc. Brand new unwanted gift. Ring with senisible offer, 01-229 0374.

AMSTRAD DMP 2000 printer, only two months old, perfect condition, with manual and connecting lead, in original packaging, plus dust cover and Fanfold paper. £140. Tel. Horley 771876 after 5pm.

ATARI SM124 monochrome monitor for ST. New, unused, cost £150, sell for £100. Phone Mo on Bloxwich (0922) 492039.

AMSTRAD software, all half price, originals, Knight Lore, Code Name, Mat, Hobbit, Colossal, Toolbox, Mini-Office, Roland In Time etc. Lots more. Phone weekends. Alex 021-327 5046.

TEXAS T199/4A Mini Memory £45. Extended Basic £40. Voodoo Castle Mission Impossible, Early Reading, Number Majic, £3 each. Tipper, Joytalk RS232 interface £35. 32 Glenshesk Park, Dunmurry BJ17 9BA, 0232 623001.

IS your Beeb in a very bad but repairable condition? Want to sell it? Tel: Luton (0582) 424025. Also for sale Vic 20 + 32K, tape, lots of games, leads etc. Accept £200 ono.

CBM 64, C2N, 1701 colour monitor, 2 joysticks, worth £500, plus £250 worth of software, all for sale at £200 ono. Will split. Phone Rusper 408 ask for Mark.

COMMODORE 64, C2N cassette unit, Simons basic, Uridium music system, Pitstop II, International Soccer, Last V8, and many other games, all for £170 ono. Tel: Basildon (0268) 26159.

AMSTRAD software games, utilities from 75p plus Amstrad chart, Program Guide, Back up. Tel. 0709 545055 or send SaE for lists to Phil Maxfield, 40 The Brow, Brecks, Rotherham S65 3HP.

AMSTRAD PCW 8512 personal computer and word processor with green screen, printer and paper drive, 3 weeks old, under guarantee, £500. Tel. 0353 2946.

SPECTRUM dual function joystick interface, Kempston/cursor and Quickshot joystick, unused, £13. J. Willis, 48 Parkway, Chellaston, Derby (0332) 703892.

WANTED print head for Seikosha AP-100 printer or equivalent also Amstrad software to swap or sell, disc or tape.

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New Releases

Graham Taylor looks through this week's new arrivals

Amstrad

Program *Redhawk* **Type** Arcade **Machine** Amstrad **Price** £8.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston Upon Thames, Surrey KT1 4DB

Program *Rock 'n' Wrestle* **Type** Arcade **Machine** Amstrad **Price** £8.95 **Supplier** Melbourne House as above

BBC

Program *À Vous la France* **Type** Educational **Machine** BBC **Price** £8.95 **Supplier** BBC Soft, 35 Marylebone High Street, London W1A 4AA

Program *Deutsch Direkt* **Type** Educational **Machine** BBC **Price** £22.95 **Supplier** BBC Soft as above

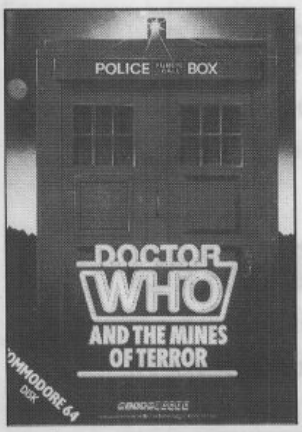
Commodore

Program *Hectic* **Type** Arcade **Machine** Commodore 16 **Price** £1.99 **Supplier** Mastertronic 6-10 Paul Street, London EC2A 4JH

Program *Dr Who and the Mines of Terror* **Type** Arcade **Machine** Commodore 64 **Price** £11.95 **Supplier** Micro Power, Northwood House, Northwood House, North Street, Leeds LS7 2AA

On the BBC this program was, I'll admit, a bit special in a market that didn't see much by way of mega, multi screen arcade/adventures.

On the Commodore 64 it's another story. At £11.95, that puts *Dr Who* in the mega league and it isn't that.



It isn't quite just a bog standard collect objects, use them, jump affair such as you might find on countless £1.99 Mastertronic games, but the additions don't, I feel, add up to all that much. The Doctor has to find and disable a nasty time device being built by the Master. He is aided not only by his wits, but also a cat called Splinx which you can control.

Solving the game is partly a matter of figuring out what to do with what object and partly a matter of the creative use of Splinx. A separate menu is used to issue instructions like, follow, go to a marker (which the Doctor can place in strategic locations) and pick up an object. Combinations of all three are required to deal with some problems.

Quite ingenious, reasonable to look at, moderately addictive, slightly original, too expensive.

Program *Kik Start* **Type** Arcade **Machine** Commodore 16 **Price** £1.99 **Supplier** Mastertronic as above

Program *Return of Rockman* **Type** Arcade **Machine** Commodore 16 **Price** £1.99 **Supplier** Mastertronic as above

Program *Pharoahs Tomb* **Type** Arcade **Machine** Commodore 16 **Price** £4.95 **Supplier** Magnificent 7, 21 Upfield, Horley, Surrey RH6 7JY

Program *Space Pilot* **Type** Arcade **Machine** Commodore 16 **Price** £1.99 **Supplier** Mastertronic as above

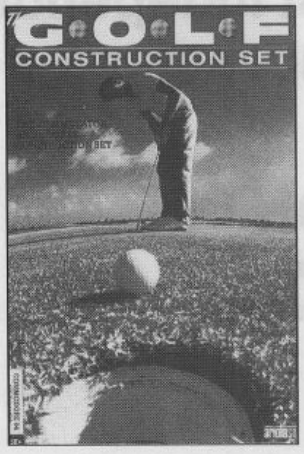
Program *Bump Set Spike* **Type** Strategy **Machine** Commodore 64 **Price** £1.99 **Supplier** Mastertronic as above

Program *Formula 1 Simulation* **Type** Simulation **Machine** Commodore 64 **Price** £2.99 **Supplier** Mastertronic as above

Program *Kaiser* **Type** Strategy **Machine** Commodore 64 **Price** £7.95 **Supplier** Ariolasoft as above

Program *Knights of the Desert* **Type** Strategy **Machine** Commodore 64 **Price** £9.95 **Supplier** US Gold, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham

Program *Golf Construction Set* **Type** Strategy **Machine** Commodore 64 **Price** £12.95 **Supplier** Ariolasoft, 68 Long Acre, Covent Garden, London WC2

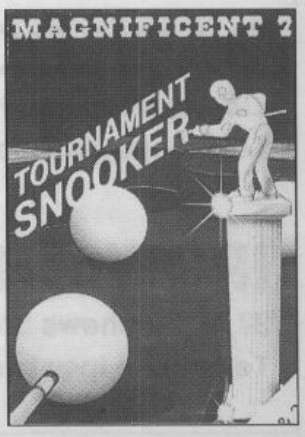


Program *Redhawk* **Type** Arcade **Machine** Commodore 64 **Price** £8.95 **Supplier** Melbourne House as above

Program *Starbound* **Type** Arcade **Machine** Commodore 164**Price** £2.95 **Supplier** CSD, Thomson House, 296 Farnborough Road, Farnborough, Hampshire GU14 7NF

Program *War Play* **Type** Strategy **Machine** Commodore 64 **Price** £7.95 **Supplier** Anco 85 Tile Film Lane, Bexley, Kent

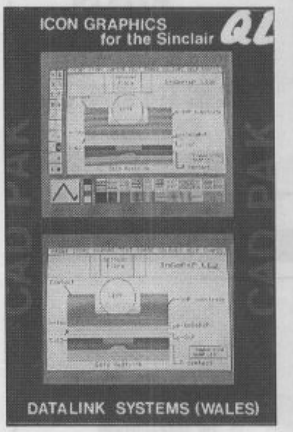
Program *Tournament Snooker* **Type** Strategy **Machine** Commodore 64 **Price** £7.95 **Supplier** Magnificent 7 as above



Pick of the week

CAD PAK

Program *Cad Pak* **Type** Utility **Machine** QL **Price** £14.95 **Supplier** Datalink Systems, Glangors, Ynyslas, Dyfed SY24 5JU



Don't be confused. Despite the title, *Cad Pak* is really another graphics package for the QL. The main difference between it and the Sinclair official package (as was), is that it has marginally fewer features, but is easier to use and half the price.

Graphics programs are one of the few areas where icons actually have some value, partly because of the obvious visual correlation of expressing a graphic idea via a graphic comand. *Cad Pak* has just about everything you could need; instant circles, squares, multi-sided figures, cut and paste, text, spray paint, various kinds of shading and fill.

One nice touch is a little box on the bottom left of the screen which shows you what you will get if you execute a particular command. So easy is the package to use that there is virtually no need for a manual – just as well really since there isn't one. (I could have done with a couple of pages worth, though.) An excellent low-priced alternative to the Sinclair pack.

Plus 4

Program *Indoor Soccer* **Type** Strategy **Machine** Plus 4 **Price** £4.95 **Supplier** Magnificent 7 as above

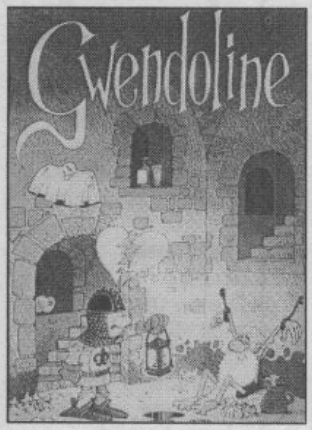
QL

Program *Gobble Gobble* **Type** Arcade **Machine** QL **Price** £9.95 **Supplier** Eiden, 45 Bancroft Road, Widnes, Cheshire WA8

Program *Gwendoline* **Type** Arcade **Micro** QL **Price** £14.95 **Supplier** Labochrome, Rue de Fragnee, 173 4000 Liege, Belgium

Gwendoline is a QL game from Belgium and in so far as it looks a bit like a slightly dated Spectrum title, it's pretty good by QL standards.

Absolutely standard collect and dodge – you are a rather hapless looking knight and



there is the inevitable princess to be rescued.

The screens consist of castle rooms, dungeons and towers, and the whole thing is littered with odd objects that do wacky things like make your knight run backwards, etc, etc.

Not actually a bad game, just a little tired looking. *Gwendoline* may be worth all the trouble of ordering from Belgium if you absolutely love *Miner*-style games.

OLR

Spectrum

Program *Indoor Soccer* **Type** Strategy **Machine** Spectrum **Price** £4.95 **Supplier** Magnificent 7 as above

Program *Redhawk* **Type** Arcade **Machine** Spectrum **Price** £8.95 **Supplier** Melbourne House as above

Program *Delta Wing* **Type** Arcade **Machine** Spectrum **Price** £2.99 **Supplier** Mastertronic, 6-10 Paul Street, London EC2A 4JH



Maybe we've just been saturated with flying simulation/dog fight games, but it's a little difficult to get very enthusiastic about *Delta Wing*. It's really just a basic, fly the plane, shoot up the bases and enemy fighters affair. Ground is a slab of green, sky a slab of blue. All other graphics aside from your cockpit (which is rather neat – hand moves on joystick, etc) are black line only affairs. OK, but no more.

Flying games all come somewhere on a scale of pure simulation (learning to fly the plane is all) to shoot-em-up (blasting the baddies is all). This is about 40% fly and 60% blast away.

I should say that *Delta Wing* is only £2.99 which makes it pretty cheap compared to the competition, but unless you don't yet have one of the countless other similar programs there is no great reason to buy this one.

There is one point of relevance to game players who have a) interface 1 and b) a friend with a Spectrum. On the other side of the tape is a multi-player version of the game where you play against one another as though piloting two separate aircraft, ie, each player appears on the other's cockpit screen as the enemy.

That may prove to be a different game entirely and lots more fun. Under those circumstances I'd say buy, buy, buy.

Program *Bounder* **Type** Arcade **Machine** Spectrum **Price** £7.95 **Supplier** Gremlin Graphics, Alpha House, 10 Carver St, Sheffield S1 4FS

Bounder was originally released on the Commodore 64 where it achieved quasi cult status. Now the game has been converted to the Spectrum complete with full monocolour screen display.

The entire justification for the game's existence is its originality; it scores at least 90% in this crucial area where other programs barely notch up a single bonus point. The presentation is rather neat as well.

The game works like this. Imagine you are looking down on a ball hovering over a scrolling landscape, you see the ball as getting bigger when it bounces towards you and smaller when it hits the ground. Your task is to control the ball; bouncing it only on safe areas of ground, avoiding assorted nasty things and landing on various bonus squares that offer treats like extra lives.

The object of the game is simply to get your ball into the goal, but this requires not only very careful control of your bounce but also making a map – in some places there is only one route forward. *Bounder* looks nice and is very original; I found it frustrating rather than addictive, but the determined may well love it.

Program *Power Print II* **Type** Utility **Micro** Spectrum **Price** £7.99 **Supplier** Buttercraft, 14 Western Avenue, Riddlesden, Keighley, Yorks.

Power Print II is an interesting utility from Buttercraft. It allows you



to design various sorts of banners and posters using text just about as large as you want. The greatest virtue of the system is its extreme ease of use. Write your text, draw a window to represent the size you want the text to be, and then choose your text style – a mixture of any one of five fonts and 84 overlays (different kinds of fill basically) – then print it.

I have to say that I found a good many of the combinations, including many of those illustrated in the manual, rather ugly, but there is enough choice to find something you fancy.

As is, the program is designed to work with dodgy old ZX style printers, but there are some fairly comprehensive instructions on using the system with most of the common interfaces.

Program *Questprobe* **Type** Adventure **Micro** Spectrum **Price** £9.95 **Supplier** All American Adventures, Unit 10, Parkway Industrial Estate, Hereage St, Birmingham B7 4LY

When Adventure International first started to release adventures based on the Marvel Comic superheroes they received mixed reviews, for being graphically quite neat but lacking really inventive ideas in the design.

Now US Gold under the All American Adventures banner has taken on the marvel series. Next up is *Questprobe,* featuring the Human Torch and the Thing and there are reasons to be more optimistic about its long term addictiveness.

You play not one, but two superheroes, The Torch and the Thing, and can change which viewpoint you are playing from at any time. Your task is to rescue Alicia Masters from the grip of Dr Doom who is not a nice guy. Among other wacky people you might meet are the Circus of Death (a laugh a minute). All locations are illustrated with some pleasing, if not awe-inspiring, graphics.

Working with two characters certainly adds something to the game and I was reasonably inclined to keep playing even though it took me half an hour to figure out the first thing to

Program *Trio* **Type** Arcade **Machine** Spectrum **Price** £2.95 **Supplier** CSD as above

Charts

Top Twenty

1	(4)	V *(Spectrum/ C64)*	**Ocean**
2	(5)	Bomb Jack *(Spectrum)*	**Elite**
3	(2)	Green Beret *(Spectrum)*	**Imagine**
4	(3)	Way of the Tiger *(Spectrum/ Amstrad/ MSX)*	**Gremlin**
5	(8)	Commando *(Spectrum/ C64/ BBC/ C16)*	**Elite**
6	(6)	Last V8 *(C64/ Amstrad/ Atari)*	**Mastertronic**
7	(9)	Formula One Simulator *(Various)*	**Mastertronic**
8	(14)	One Man And His Droid *(Various)*	**Mastertronic**
9	(16)	Finders Keepers *(Various)*	**Mastertronic**
10	(7)	Computer Hits 10 (2) *(Various)*	**Beau Jolly**
11	(15)	Action Biker *(Spectrum/ C64/ C16/ Atari)*	**Mastertronic**
12	(17)	BMX Racers *(Spectrum/ C64/ Amstrad/ C16)*	**Mastertronic**
13	(13)	F A Cup Football *(Spectrum/ C64/ Amstrad)*	**Virgin**
14	(–)	Sport Of Kings *(Spectrum)*	**Mastertronic**
15	(–)	Rockman *(Spectrum, C64, Vic, C16)*	**Mastertronic**
16	(19)	Mr Puniverse *(C16)*	**Mastertronic**
17	(3)	Bomb Jack *(Spectrum)*	**Elite**
18	(–)	Starstrike 2 *(Spectrum)*	**Realtime**
19	(–)	Off The Hook *(Spectrum, C64)*	**Off The Hook**
20	(11)	Yie Ar Kung Fu *(Various)*	**Imagine**



V – up to no 1



Off the Hook – new entry

Top Tens

All figures compiled by Gallup/Microscope

Amstrad

1	(4)	Into Oblivion	**(Mastertronic)**
2	(–)	Caves Of Doom	**(Mastertronic)**
3	(3)	Last V8	**(Mastertronic)**
4	(–)	One Man & his Droid	**(Mastertrc)**
5	(6)	Finders Keepers	**(Mastertronic)**
6	(2)	Spindizzy	**(Electric Dreams)**
7	(1)	Way Of The Tiger	**(Gremlin)**
8	(–)	Get Dexter	**(PSS)**
9	(7)	Comp Hits 10 (2)	**(Beau Jolly)**
10	(8)	Formula 1 Sim	**(Mastertronic)**



Superbowl – going down

Commodore 64

1	(–)	Bomb Jack	**(Elite)**
2	(2)	V	**(Ocean)**
3	(3)	Superbowl	**(Ocean)**
4	(1)	Uridium	**(Hewson Consultants)**
5	(8)	Kane	**(Mastertronic)**
6	(–)	Off The Hook	**(Off The Hook)**
7	(–)	Phantom of the Asteroids	**(Mstrc)**
8	(–)	Wing Commander	**(Mastertronic)**
9	(–)	Last V8	**(Mastertronic)**
10	(6)	Zapp Sizzlers	**(Gremlin)**

Atari

1	(1)	Last V8	**(Mastertronic)**
2	(2)	Action Biker	**(Mastertronic)**
3	(3)	One Man & his Droid	**(Mastertrc)**
4	(8)	Chimera	**(Firebird)**
5	(–)	Arcade Classics	**(Datasoft)**
6	(5)	Fighter Pilot	**(Digital Integration)**
7	(8)	Spy v Spy 2	**(Databyte)**
8	(6)	Strip Poker	**(Artwork/US Gold)**
9	(–)	Asylum	**(US Gold)**
10	(–)	Smash Hits 4	**(English)**

BBC

1	(1)	Commando	**(Elite)**
2	(3)	Winter Olympics	**(Tynesoft)**
3	(3)	Karate Combat	**(Superior)**
4	(4)	Yie Ar Kung Fu	**(Imagine)**
5	(9)	Strike Force Harrier	**(Mirrorsoft)**
6	(6)	Citadel	**(Superior)**
7	(–)	Speech	**(Superior)**
8	(8)	Tennis	**(Bug Byte)**
9	(–)	Hypersports	**(Imagine)**
10	(5)	Comp. Hits 10 Vol 2	**(Beau Jolly)**

Spectrum

1	(1)	Green Beret	**(Imagine)**
2	(5)	V	**(Ocean)**
3	(2)	Bomb Jack	**(Elite)**
4	(3)	Way Of The Tiger	**(Gremlin)**
5	(–)	Sport Of Kings	**(Mastertronic)**
6	(9)	Starstrike 2	**(Realtime)**
7	(7)	F A Cup Football	**(Virgin)**
8	(6)	Incred Shrink Fireman	**(Mastrc)**
9	(–)	Turbo Esprit	**(Durell)**
10	(10)	Devils Crown	**(Mastertronic)**

NEXT WEEK

The next issue of *Popular Computing Weekly* is the start of something big. In addition to the usual features – hot news, exclusive reviews, programming tips – you'll find the first of a series of supplements.

Every second week we'll be looking at a different aspect of microcomputing – some supplements will examine particular machines, others will look at music, graphics and education.

The series starts with a bonus for Commodore owners and will include:

● Commodore word processing
New packages including *Paperclip and Cut 'n'Paste.*

● 80-column displays on the 128
How to get business-standard displays without investing in a £300 monitor.

● Alternate realities
A profile on US simulations specialist Microprose with a look at two of its new products, submarine action in *Silent Service* and aerial thrills from *Acrojet.*

● Plus
A look ahead to next month's Commodore Show.

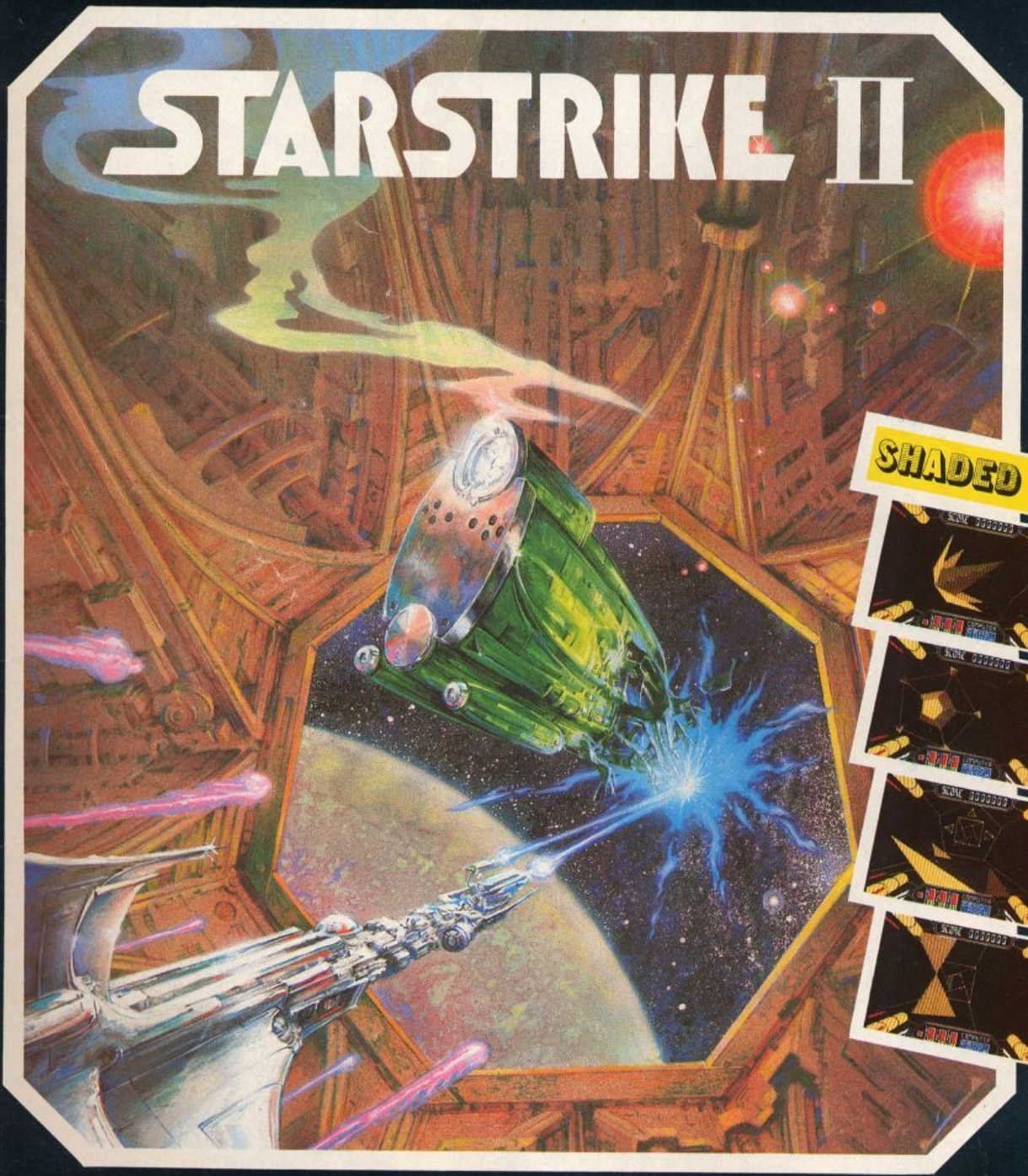
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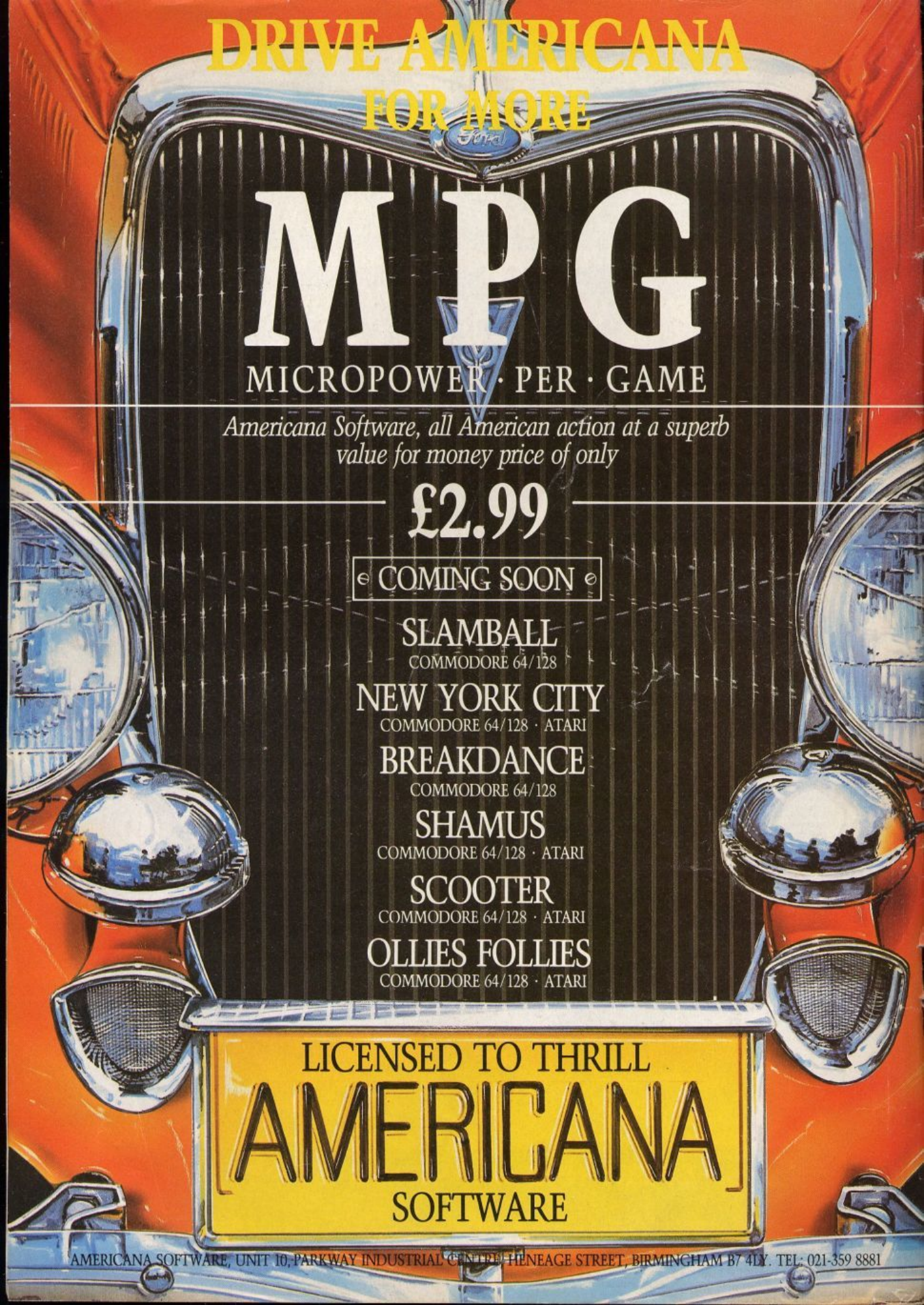


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